

Service Manual



ORDER NO.
RRV1027

COMPACT DISC PLAYER

PD-203 PD-103

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model		Power Requirement	The voltage can be converted by the following method.
	PD-203	PD-103		
KUXJ	○	○	AC120V	
KCXJ	—	○	AC120V	
RD	○	○	AC110-127V/220-240V	With the voltage selector
WBXK	○	○	AC220-240V	
WEMXK	○	○	AC220-240V	
WL	○	○	AC220-240V	
WPW	○	○	AC220-240V	

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CHAPTER 1

1.1 SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols  (fast operating fuse) and/or  (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible  (fusible de type rapide) et/ou  (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

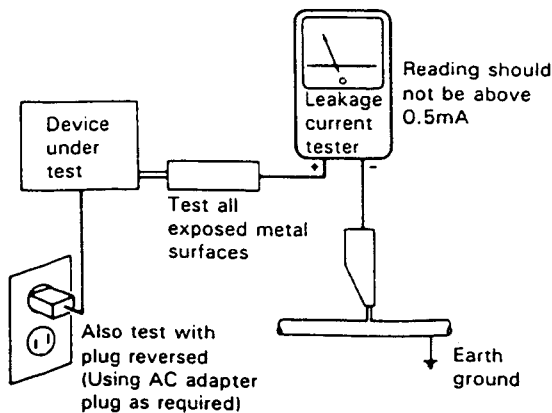
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a Δ on the schematics and on the parts list in this Service Manual. The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

(FOR EUROPEAN MODEL ONLY)

VARO!
AVATTAESSA JA SUOJALUKITUS
OHITETTAESSA OLET ALTTIINA
NÄKYMÄTTÖMÄLLE LASERSATEILYLLE.
ÄLÄ KATSO SÄTEESEEN.

ADVARSEL:
USYNLIG LASERSTRÅLING VED ÅBNING
NÅR SIKKERHEDSAFBRYDERE ER UDE AF
FUNKTION. UNDGÅ UDSÆTTELSE FOR
STRÅLING.

VARNING!
OSYNLIG LASERSTRÅLNING NÅR DENNA
DEL ÄR ÖPPNAD OCH SPÄRREN
ÄR URKOPPLAD. BETRakta EJ STRÅLEN.



LASER
Kuva 1
Lasersateilyn
varoituserkki

WARNING!
DEVICE INCLUDES LASER DIODE WHICH
EMITS INVISIBLE INFRARED RADIATION
WHICH IS DANGEROUS TO EYES. THERE IS
A WARNING SIGN ACCORDING TO PICTURE
1 INSIDE THE DEVICE CLOSE TO THE LASER
DIODE.



LASER
Picture 1
Warning sign for
laser radiation

IMPORTANT
THIS PIONEER APPARATUS CONTAINS
LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS
SHOULD BE DONE BY A SPECIALLY
INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 5 mw
WAVELENGTH: 780-785 nm

LABEL CHECK (SINGLE type)

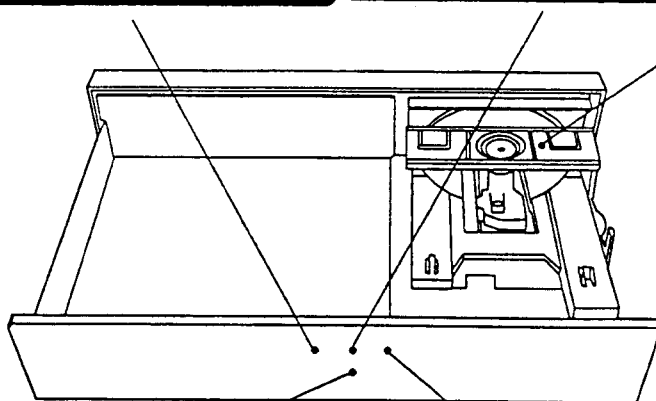
WBXK type

CAUTION
INVISIBLE LASER
RADIATION WHEN OPEN,
AVOID EXPOSURE
TO BEAM
PRW1018

WEMXK type

ADVARSEL
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAF-
BRYDERE ER UDE AF FUNKTION.
UNDGÅ UDSÆTTELSE FOR STRÅLING.
VORSICHT!
UNSICHTBARE LASER-STRÅLUNG TRITT AUS, WENN DECKEL
(ODER KLASPE) GEÖFFNET IST! NICHT DEM STRAHL AUSSETZEN!
VRW1094

**WEMXK and
WBXK types**



Additional Laser Caution

- 1. Laser Interlock Mechanism**
The position of the switch (S601) for detecting loading completion is detected by the system microprocessor, and the design prevents laser diode oscillation when the switch (S601) is not in CLMP terminal side (when the mechanism is not clamped and CLMP signal is high level). Thus, the interlock will no longer function if the switch (S601) is deliberately set to CLMP terminal side (if CLMP signal is low level).
In the test mode * the interlock mechanism will not function.
Laser diode oscillation will continue, if pin 1 of M51593FP (IC101) on the preamplifier board loaded on pickup assembly are connected to GND, or pin 19 is connected to low level (ON), or else the terminals of Q101 are shorted to each other (fault condition).
- 2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 laser beam.**

* Refer to page 1-8.

VARO!
Avattaessa ja suojalukitus ohitetta-
essa olet alttiina näkymättömälle
lasersäteilylle. Älä katso säteeseen.
VARNING!
Osynlig laserstrålning när denna del
är öppnad och spärren är urkopplad.
Betrakta ej strålen.
PRW1233

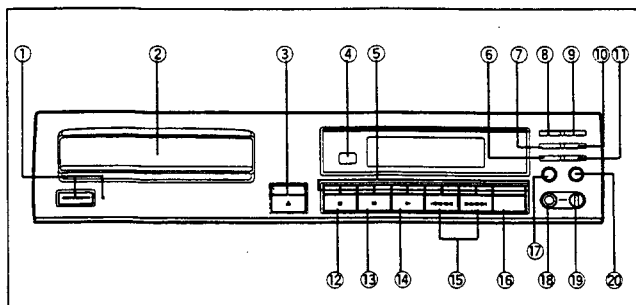
WEMXK type

**CLASS 1
LASER PRODUCT**
VRW-328

**WEMXK and
WBXK types**

1.2 PANEL FACILITIES

For KUXJ, KCXJ, WBXK, WL, WPW and WEMXK types



FRONT PANEL

- ① **POWER STANDBY/ON switch and STANDBY indicator**
- ② **Disc tray**
- ③ **OPEN/CLOSE button (▲)**
- ④ **Remote sensor**
Receives the signal from the remote control unit.
• The PD-103 is not equipped with the remote sensor.
- ⑤ **Digit buttons**
(1 - 10, >10)
- ⑥ **COMPU/AUTO EDIT button**
- ⑦ **DISPLAY OFF button**
- ⑧ **TIME button**
- ⑨ **REPEAT button**
- ⑩ **CLEAR button**
- ⑪ **PEAK SEARCH button**
- ⑫ **Stop button (■)**
- ⑬ **Pause button (II)**
- ⑭ **Play button (▶)**
- ⑮ **Track/Manual search buttons**
(◀◀ ◀ ▶▶ ▶)
- ⑯ **PROGRAM button**
- ⑰ **RANDOM button**
- ⑱ **Headphones jack (PHONES)***
- ⑲ **Headphones volume control (LEVEL)***
- ⑳ **HI-LITE scan button**

* The Australian model of the PD-103 is not equipped with the headphones jack and headphones volume control.

1.3 SPECIFICATIONS

1. General

Type	Compact disc digital audio system
Power requirements	
U.S. and Canadian models	AC 120 V, 60Hz
Other models	AC 220 - 240 V, 50/60 Hz
Power consumption	
U.S. and Canadian models	11 W
Other models	12 W
Operating temperature	+5°C - +35°C +41°F - +95°F
Weight	3.4 kg (7 lb, 11 oz)
External dimensions	
U.S., Canadian, and	
U.K. models	420(W) X 101.5(H) X 277(D) mm 16-9/16(W) X 4(H) X 10-15/16(D) in
Other models	(PD-203) 420(W) X 96.5(H) X 277(D) mm 16-9/16(W) X 3-13/16(H) X 10-15/16(D) in (PD-103) 420(W) X 96.5(H) X 271(D) mm 16-9/16(W) X 3-13/16(H) X 10-11/16(D) in

2. Audio section

Frequency response	2 Hz - 20 kHz
S/N ratio	
PD-203, European and U.K. models of PD-103 ..	102 dB or more (EIAJ)
Other models	98 dB or more (EIAJ)
Dynamic range	96 dB or more (EIAJ)
Harmonic distortion	0.003% or less (EIAJ)
Output voltage	2.0 V (EIAJ)
Wow and flutter	Limit of measurement (±0.001% W.PEAK) or less (EIAJ)
Channels	2-channel (stereo)

3. Output terminal

Audio line output jacks
Control input/output jacks (available with the PD-103 and U.S. and Canadian models of the PD-203 only)
CD-DECK SYNCHRO jack
Headphones jack (with volume control) (Australian model of the PD-103 is not equipped with the headphones jack and headphones volume control.)

4. Accessories

• Remote control unit (PD-203 only)	1
• AAA/R03 dry cell batteries (PD-203 only)	2
• Control cable (provided with PD-103 and U.S. and Canadian models of PD-203 only)	1
• Output cable	1
• Operating instructions	1

NOTE:

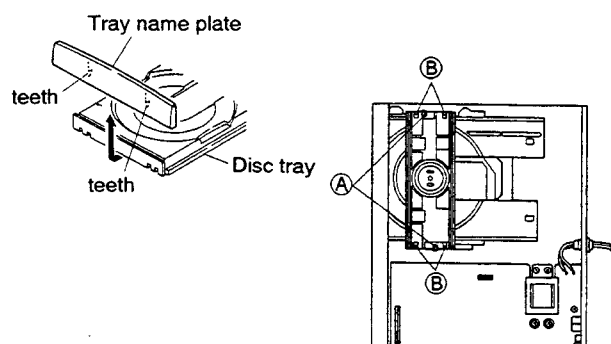
Specifications and design subject to possible modification without notice, due to improvements.

1.4 DISASSEMBLY

1. REMOVING THE TRAY (See Fig. 1.)

As the teeth of the tray cannot be bent, remove the tray according to the following procedures.

- ① Remove the bonnet.
- ② Press the OPEN/CLOSE (▲) button on the front panel, and move the tray to the OPEN position.
- ③ Remove the tray name plate.
(Release the two teeth of the tray name plate, and lift it up.)
- ④ Push in the tray.
- ⑤ Remove the clamber base.
(Remove the two screws ① and release the four teeth of clamp base.)
- ⑥ Remove the operation panel.
- ⑦ Pull out the tray.



Note: When opening with your hands, do so as follows.

- 1) Pull the right edge ① of the clamber cam in the direction of the operation panel. The servo mechanism descends, the clamber is released, and the tray opens about 2 cm.

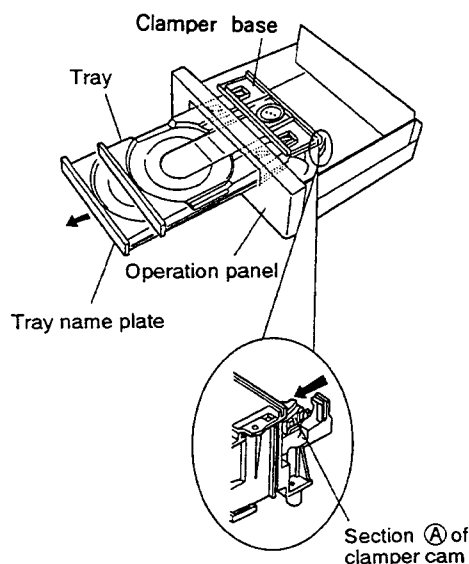


Fig. 1.

2. REMOVING THE SERVO MECHANISM ASSY

- ① Remove the tray and clamber base. (See 1.)
- ② With the servo mechanism assembly in the descended condition (tray open position), remove the 4 screws ② holding this assembly, and screw ③ holding the ground lead. Cut the binder holding the bundle of wires onto the loading base with a pair of nippers.

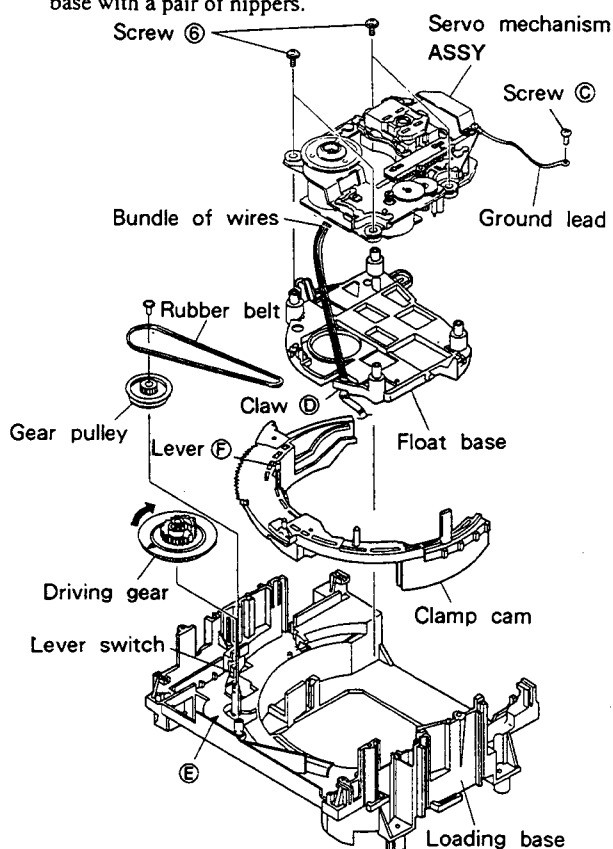


Fig. 2.

3. REMOVING THE FLOAT BASE (See Fig. 2.)

- ① Remove the servo mechanism assembly. (See 2.)
- ② Rotate the driving gear in the clockwise direction fully. The clamp cam will rotate in the counterclockwise direction, and the float base will rise.
- ③ After removing the bundle of wires from claw ① of the float base, remove the float base.

Note: If the clamp cam does not rotate even if the driving gear is rotated, it means that these gears are not engaged. In this case, engage them in the correct position according to the following procedures, and rotate the driving gear.

- 1) Adjust the ▼ mark of the driving gear (on the round hole) to the ▲ mark ④ of the loading base.
- 2) Rotate lever ⑤ on the clamp cam in the counterclockwise direction.

4. REMOVING THE CLAMP CAM

- ① Remove the float base. (See 3.)
- ② Remove the gear pulley and driving gear.
- ③ After rotating the clamp cam fully in the counter clockwise direction, pull it up.

5. REMOVING THE MOTHER BOARD ASSY

- ① Remove CN131, CN202, CN205, CN351, and CN401 (connectors).
- ② Remove the screw ④ securing the LINE OUT terminal from the rear.
- ③ Remove the screw ⑤ to remove the wrapping of the power cord.
- ④ Remove the four screws ⑥ securing the board and the four screws ⑦ securing the power transformer.
- ⑤ Lift the mother board assembly straight up to remove it.

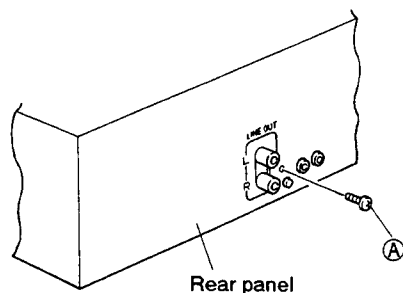
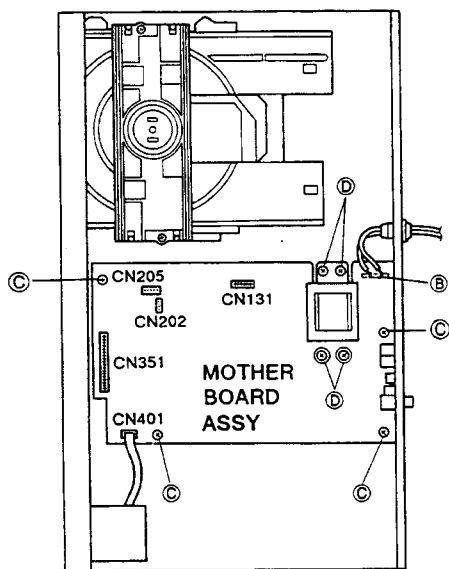


Fig. 3.

6. INSTALLING THE CLAMP CAM

- ① While pushing down the lever switch on the loading base towards the transformer board assembly, install the clamp cam.

7. INSTALLING THE FLOAT BASE

- ① Rotate the clamp cam in the counterclockwise direction fully, and install the float base.
For details on rotating the clamp cam, refer to "3. Removing the Float Base".

8. INSTALLING THE TRAY

- ① Rotate the driving gear in the counterclockwise direction, and lower the servo mechanism assembly to the maximum.
- ② Rotate the driving gear in the counterclockwise direction, and adjust the ▼ mark of the driving gear (on the round hole) to the ▲ mark of the loading base.
- ③ Insert the tray.

Note 1: If the servo mechanism assembly does not descend even if the driving gear is rotated, it means that the gears are not engaged.

In this case, perform ②, and rotate the driving gear once again.

Note 2: The servo mechanism assembly will not rise fully even if the tray is inserted completely. However, it rises to the maximum automatically when the power is supplied.

1.5 ADJUSTMENTS

● Adjustment Methods

If a disc player is adjusted incorrectly or inadequately, it may malfunction or not work at all even though there is nothing at all wrong with the pickup or the circuitry. Adjust correctly following the adjustment procedure.

● Adjustment Items/Verification Items and Order

If the specified values cannot be obtained or no adjustment is possible by performing the verifications or adjustments described in steps 1 – 4, the pickup block may be defective.

Step	Item	Test Point	Adjustment Location
1	Focus offset verification	TP1, Pin 6(FCS. ERR)	None
2	Tracking error balance verification	TP1, Pin 2(TRK. ERR)	None
3	Pickup radial/tangential direction tilt adjustment	TP1, Pin 1(RF)	Radial tilt adjustment screw, Tangential tilt adjustment screw
4	RF level verification	TP1, Pin 1(RF)	None
5	Focus servo loop gain adjustment	TP1, Pin 5(FCS. IN) TP1, Pin 6(FCS. ERR)	VR152 (FCS. GAN)
6	Tracking servo loop gain adjustment	TP1, Pin 3(TRK. IN) TP1, Pin 2(TRK. ERR)	VR151 (TRK. GAN)

● Abbreviation table

FCS. ERR	:Focus Error
TRK. ERR	:Tracking Error
FCS GAN	:Focus Gain
TRK GAN	:Tracking Gain
FCS. IN	:Focus In
TRK. IN	:Tracking In

● Measuring Instruments and Tools

1. Dual trace oscilloscope (10:1 probe)
2. Low-frequency oscillator
3. Test disc (YEDS-7)
4. 8cm disc (With at least about 20 minutes of recording)
5. Low-pass filter ($39\text{k}\Omega + 0.001\ \mu\text{F}$)
6. Resistor ($100\text{k}\Omega$)
7. Ball point hexagon wrench (GGK1002)
8. Standard tools

● Test Point and Adjustment Variable Resistor Positions

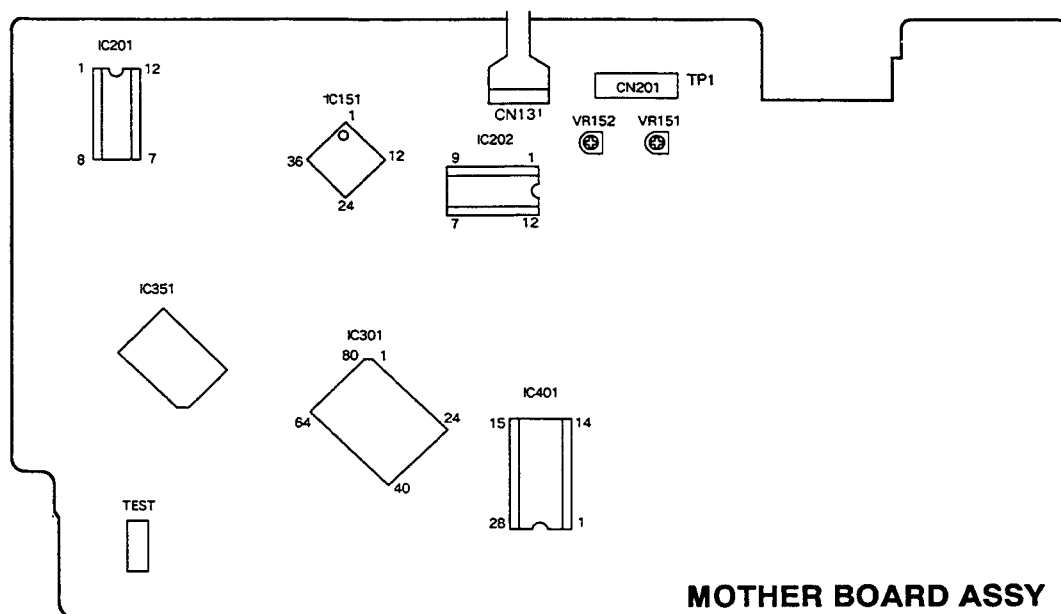


Figure 1 Adjustment Locations

● Notes

1. Use a 10:1 probe for the oscilloscope.
2. All the knob positions (settings) for the oscilloscope in the adjustment procedures are for when a 10:1 probe is used.

● Test Mode

These models have a test mode so that the adjustments and checks required for service can be carried out easily. When these models are in test mode, the keys on the front panel work differently from normal. Adjustments and checks can be carried out by operating these keys with the correct procedure. For these models, all adjustments are carried out in test mode.

[Setting these models to test mode]

How to set this model into test mode.

1. Unplug the power cord from the AC socket.
2. Short the test mode jumper wires. (See Figure 1.)
3. Plug the power cord back into the AC socket.

When the test mode is set correctly, the display is different from what it usually is when the power is turned on. If the display is still the same as usual, test mode has not been set correctly, so repeat Steps 1 – 3.

[Release from test mode]

Here is the procedure for releasing the test mode:

1. Press the STOP key and stop all operations.
2. Unplug the power cord from the AC socket.

[Operations of the keys in test mode]

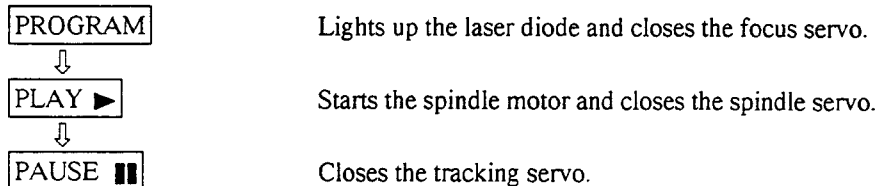
Code	Key Name	Function in Test Mode	Explanation
	PROGRAM	Focus servo close	The laser diode is lit up and the focus actuator is lowered, then raised slowly and the focus servo is closed at the point where the objective lens is focused on the disc. With the player in this state, if you lightly rotate the stopped disc by hand, you can hear the sound the focus servo. If you can hear this sound, the focus servo is operating correctly. If you press this key with no disc mounted, the laser diode lights up, the focus actuator is pulled down, then the actuator is raised and lowered three times and returned to its original position.
▶	PLAY	Spindle servo ON	Starts the spindle motor in the clockwise direction and when the disc rotation reaches the prescribed speed (about 500 rpm at the inner periphery), sets the spindle servo in a closed loop. Be careful. Pressing this key when there is no disc mounted makes the spindle motor run at the maximum speed. If the focus servo does not go correctly into a closed loop or the laser light shines on the mirror section at the outermost periphery of the disc, the same symptom is occurred.
||	PAUSE	Tracking servo close/open	Pressing this key when the focus servo and spindle servo are operating correctly in closed loops puts the tracking servo into a closed loop, displays the track number being played back and the elapsed time on the front panel, and outputs the playback signal. If the elapsed time is not displayed or not counted correctly or the audio is not played back correctly, it may be that the laser is shining on the section with no sound recorded at the outer edge of the disc, that something is out of adjustment, or that there is some other problem. This key is a toggle key and open/close the tracking servo alternately. This key has no effect if no disc is mounted.

Code	Key Name	Function in Test Mode	Explanation
	MANUAL TRACK SEARCH REV	Carriage reverse (inwards)	Moves the pickup position toward the inner diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
	MANUAL TRACK SEARCH FWD	Carriage forward (outwards)	Moves the pickup position toward the outer diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
	STOP	Stop	Switches off all the servos and initialized. The pickup remains where it was when this key was pressed.
	OPEN/CLOSE	Disc tray open/close	Open/close the disc tray. This key is a toggle key and open/close tray alternately. Pressing this key when the disc is turning stops the disc, then opens the tray. This key operation does not affect the position of the pickup.

[How to play back a disc in test mode]

In test mode, since the servos operate independently, playing back a disc requires that you operate the keys in the correct order to close the servos.

Here is the key operation sequence for playing back a disc in test mode.



Wait at least 2-3 seconds between each of these operations.

1. Focus Offset Verification

● Objective	Verify the DC offset for the focus error amp.		
● Symptom when out of adjustment	The model does not focus in and the RF signal is dirty.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 6 (FCS. ERR)	● Player state	Test mode, stopped (just the Power switch on)
	[Settings] 5 mV/division 10 ms/division DC mode	● Adjustment location	None
		● Disc	None needed
[Procedure] Verify the DC voltage at TP1, Pin 6 (FCS. ERR) is 0 ± 50 mV.			

Note : If the specified values cannot be obtained or no adjustment is possible by performing the verifications or adjustments described in adjustment items 1 – 4, the pickup block may be defective.

2. Tracking Error Balance Verification

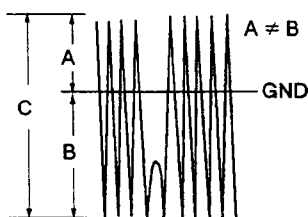
● Objective	To verify that there is no variation in the sensitivity of the tracking photo diode.		
● Symptom when out of adjustment	Play does not start or track search is impossible.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 2 (TRK. ERR). This connection may be via a low pass filter. [Settings] 50 mV/division 5 ms/division DC mode	● Player state	Test mode, focus and spindle servos closed and tracking servo open
		● Adjustment location	None
		● Disc	YEDS-7

[Procedure]

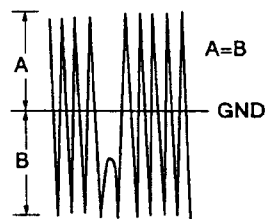
1. Move the pickup to midway across the disc (R=35 mm) with the MANUAL TRACK SEARCH FWD $\blacktriangleright\blacktriangleright$ • $\blacktriangleright\blacktriangleright$ or REV $\blacktriangleleft\blacktriangleleft$ • $\blacktriangleleft\blacktriangleleft$ key.
2. Press the PROGRAM key, then the PLAY $\blacktriangleright$ key in that order to close the focus servo then the spindle servo.
3. Line up the bright line (ground) at the center of the oscilloscope screen and put the oscilloscope into DC mode.
4. Supposing that the positive amplitude of the tracking error signal at TP1, pin 2 (TRK ERR) is (A) and the negative amplitude is (B), the following expression is satisfied.

$$\text{When } A \geq B, \frac{A-B}{C} \times \frac{1}{2} \leq 0.1$$

$$\text{When } A < B, \frac{B-A}{C} \times \frac{1}{2} \leq 0.1$$



When there is a DC component



When there is no DC component

3. Pickup Radial/Tangential Tilt Adjustment

● Objective	To adjust the angle of the pickup relative to the disc so that the laser beams are shone straight down into the disc for the best read out of the RF signals.		
● Symptom when out of adjustment	Sound broken; some discs can be played but not others.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 1 (RF).	● Player state	Test mode, play
	[Settings] 20 mV/division 200 ns/division AC mode	● Adjustment location	Pickup radial tilt adjustment screw and tangential tilt adjustment screw
		● Disc	8 cm disc (However, those with approx. 20 min of audio signal (music).)

[Procedure]

1. Press the MANUAL TRACK SEARCH FWD $\blacktriangleright \blacktriangleright \cdot \blacktriangleright \blacktriangleright$ or REV $\blacktriangleleft \blacktriangleleft \cdot \blacktriangleleft \blacktriangleleft$ key to move the pickup to the external circumference of the disc.
Press the PROGRAM key, the PLAY $\blacktriangleright$ key, then the PAUSE $\blacksquare \blacksquare$ key in that order to close the respective servos and put the player into play mode.
2. First, adjust the radial tilt adjustment screw with the hexagon wrench (GGK1002) so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly.
3. Next, adjust the tangential tilt adjustment screw with the hexagon wrench (GGK1002) so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly (Figure 3).
※ The ball-point type hexagonal wrench is used because the disc will get in the way if a normal hexagonal wrench is used.
4. Adjust the radial tilt adjustment screw and the tangential tilt adjustment screw again so that the eye pattern can be seen the most clearly. As necessary, adjust the two screws alternately so that the eye pattern can be seen the most clearly.
5. When the adjustment is completed, lock the radial and tangential adjustment screw.

Note: Radial and tangential mean the directions relative to the disc shown in Figure 2.

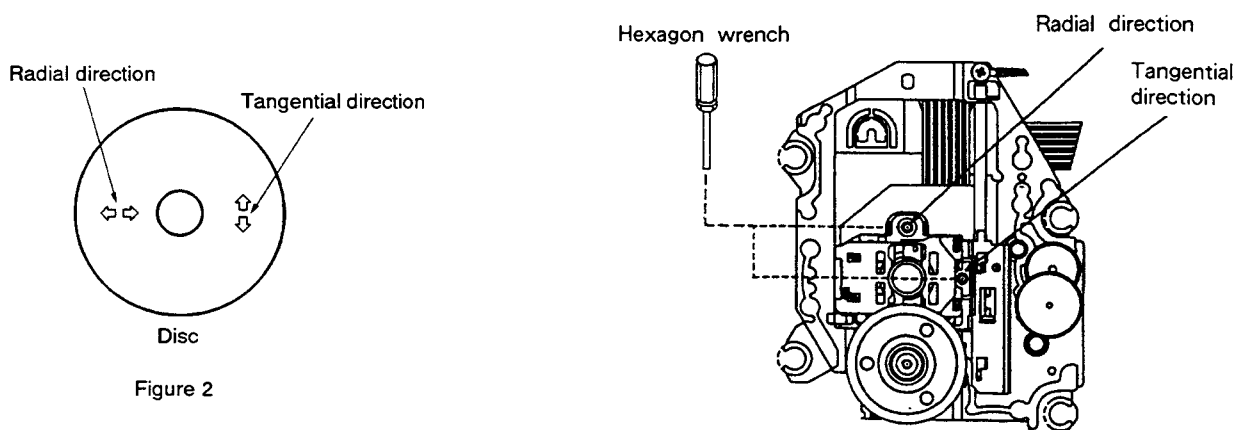


Figure 2

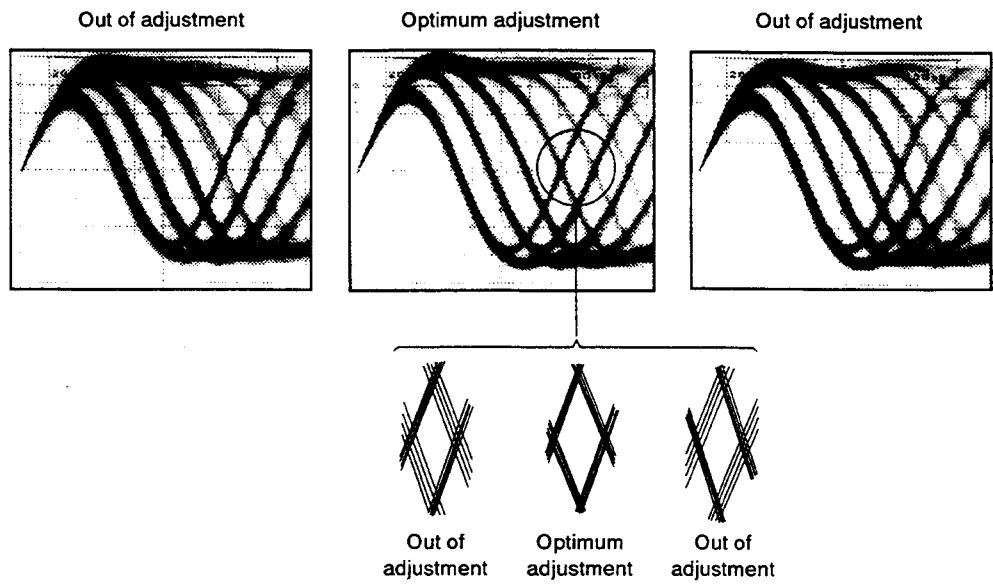


Figure 3 Eye pattern

4. RF Level Verification

● Objective	To verify the playback RF signal amplitude		
● Symptom when out of adjustment	No play or no search		
● Measurement instrument connections	Connect the oscilloscope to TPI, Pin 1 (RF).	● Player state	Test mode, play
	[Settings] 50 mV/division 10 ms/division AC mode	● Adjustment location	None
		● Disc	YEDS-7
[Procedure]			
1. Move the pickup to midway across the disc (R=35 mm) with the MANUAL TRACK SEARCH FWD ►► • ►► or REV ◄◄ • ◄◄ key, then press the PROGRAM key, the PLAY ► key, then the PAUSE || key in that order to close the respective servos and put the player into play mode.			
2. Verify the RF signal amplitude is 1.2 Vp-p ± 0.2 V.			

5. Focus Servo Loop Gain Adjustment

● Objective	To optimize the focus servo loop gain.		
● Symptom when out of adjustment	Playback does not start or focus actuator noisy.		
● Measurement instrument connections	See figure 4.	● Player state	Test mode, play
	[Settings]	● Adjustment location	VR152 (FCS. GAN)
	CH1 CH2 20 mV/division 5 mV/division X-Y mode	● Disc	YEDS-7

[Procedure]

1. Set the AF generator output to 1.2 kHz and 1 Vp-p.
2. Press the MANUAL TRACK SEARCH FWD $\blacktriangleright\blacktriangleright \cdot \blacktriangleright\blacktriangleright$ or REV $\blacktriangleleft\blacktriangleleft \cdot \blacktriangleleft\blacktriangleleft$ key to move the pickup to halfway across the disc (R=35 mm), then press the PROGRAM key, the PLAY $\blacktriangleright$ key, then the PAUSE $\blacksquare\blacksquare$ key in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR152 (FCS. GAN) so that the Lissajous waveform is symmetrical about the X axis and the Y axis.

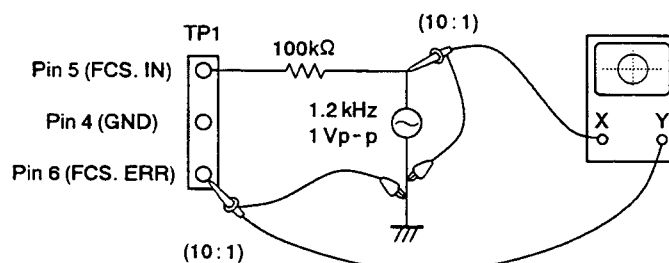
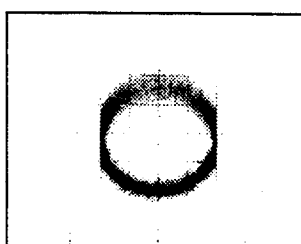


Figure 4

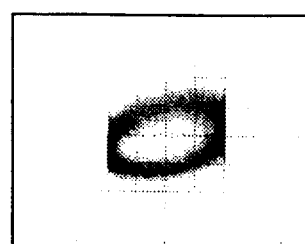
Focus Gain Adjustment



Higher gain



Optimum gain



Lower gain

6. Tracking Servo Loop Gain Adjustment

● Objective	To optimize the tracking servo loop gain.		
● Symptom when out of adjustment	Playback does not start, during searches the actuator is noisy, or tracks are skipped.		
● Measurement instrument connections	See Figure 5.	● Player state	Test mode, play
	[Settings] CH1 50 mV/division X - Y mode CH2 20 mV/division X - Y mode	● Adjustment location ● Disc	VR151 (TRK. GAN) YEDS-7

[Procedure]

- 1. Set the AF generator output to 1.2 kHz and 2 Vp-p.
- 2. Press the MANUAL TRACK SEARCH FWD ►► • ►► or REV ◀◀ • ◀◀ key to move the pickup to halfway across the disc (R=35 mm), then press the PROGRAM key, the PLAY ► key, then the PAUSE ■■ key in that order to close the corresponding servos and put the player into play mode.
- 3. Adjust VR151 (TRK. GAN) so that the Lissajous waveform is symmetrical about the X axis and the Y axis.

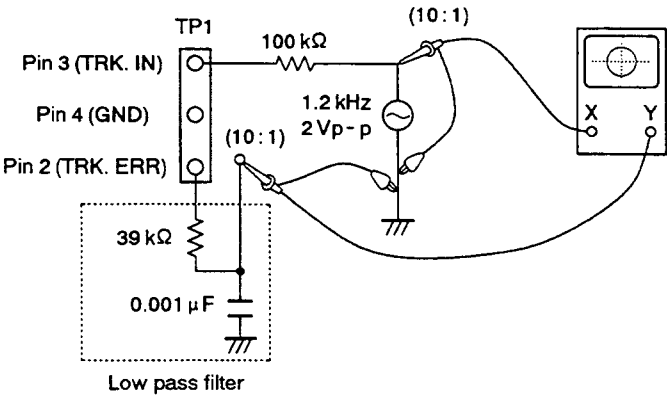
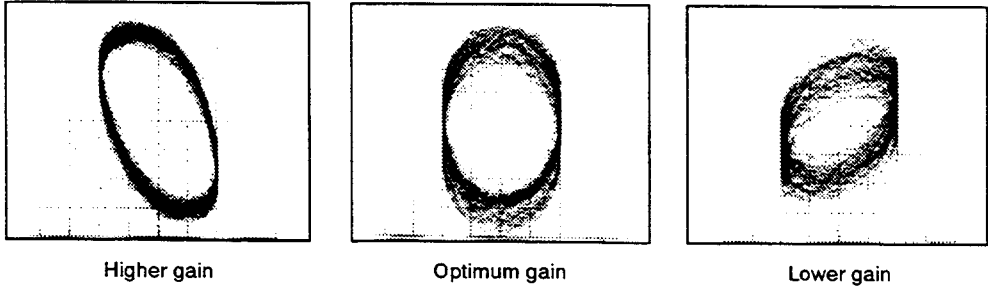


Figure 5

Tracking Gain Adjustment



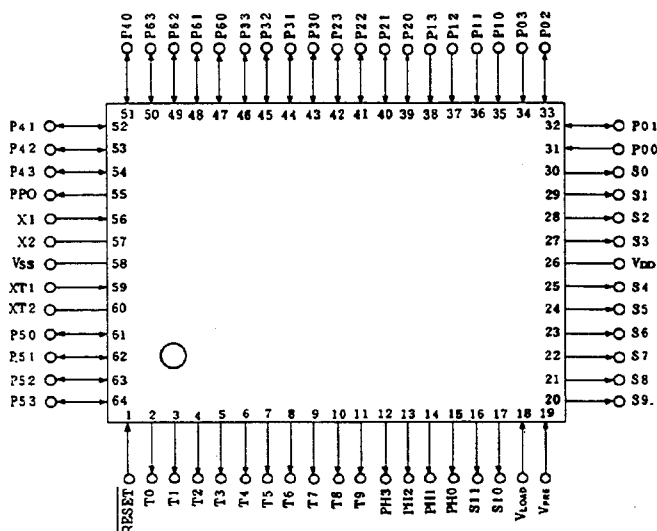
1.6 IC INFORMATION

- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

■ PD4457A (IC351)

• System Control

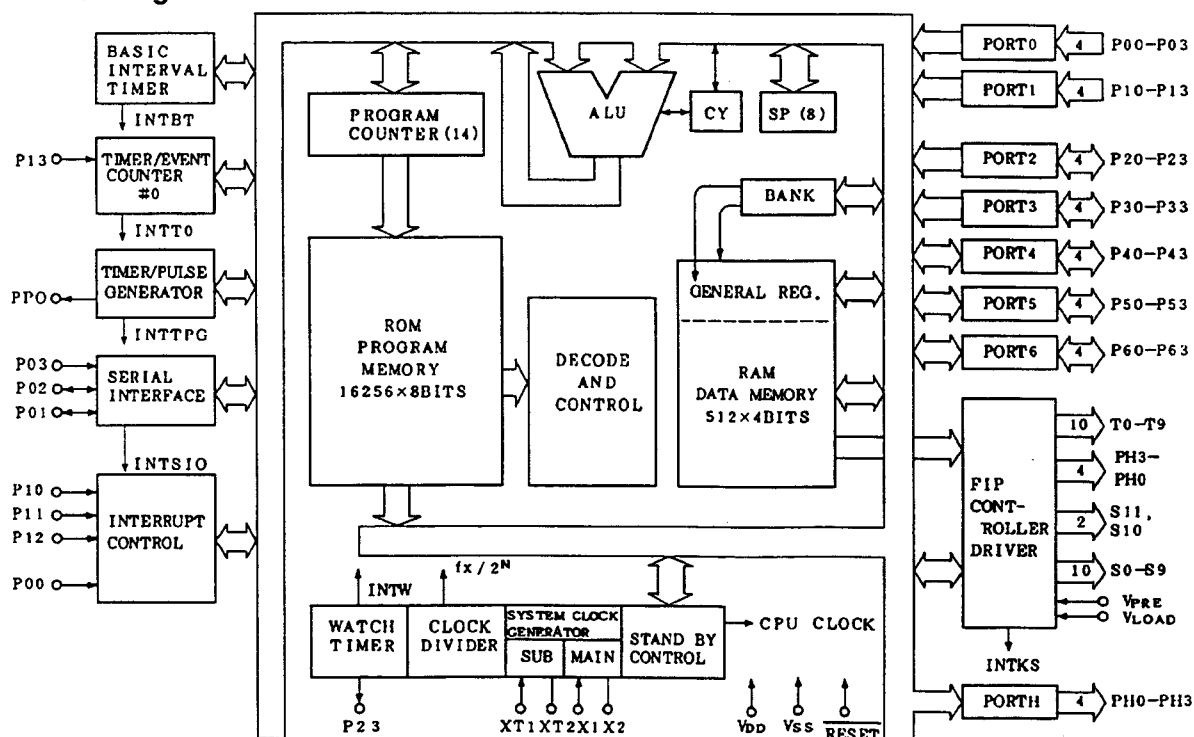
• Pin Arrangement (Top view)



• Pin Function

No.	Pin Name	Function
1	RESET	Reset input.
2-11	T0-T9	Digit output.
12-15	PH3-PH0	Port H.
16,17	S11,S10	Segment output.
18	VLOAD	Power supply terminal for FIP driver.
19	VPRE	Power supply terminal for FIP driver.
20-25	S9-S4	Segment output.
26	VDD	+ Power supply terminal.
27-30	S3-S0	Segment output.
31-34	P00-P03	Port 0.
35-38	P10-P13	Port 1.
39-42	P20-P23	Port 2.
43-46	P30-P33	Port 3.
47-50	P60-P63	Port 6.
51-54	P40-P43	Port 4.
55	PPO	Pulse output.
56,57	X1,X2	Clock oscillation terminal of Main system.
58	Vss	Ground
59,60	XT1,XT2	Clock oscillation terminal of Sub system.
61-64	P50-P53	Port 5.

• Block Diagram



1.7 PARTS LIST FOR PACKING AND EXPLODED VIEWS

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

1.7.1 PACKING

■ FOR PD-203

• PART NUMBER DIFFERENCES BETWEEN PD-203/KUXJ, RD, WBXK, WEMXK, WL AND WPW TYPES.

Part number differs between PD-203/KUXJ, RD, WBXK, WEMXK, WL and WPW.

Mark	No.	Description	Part No.					
			KUXJ type *1	RD type *2	WBXK type *3	WEMXK type *1	WL type *2	WPW type *2
NSP	11	Warranty card	ARY1044	.....	ARW - 088	ARW - 088	.....	ARY1067
	6	Protector R	PHA1260	PHA1240	PHA1254	PHA1260	PHA1240	PHA1240
	7	CD Packing case	PHG2020	PHG2025	PHG2023	PHG2022	PHG2024	PHG2024
	1	Connection cord with mini plug	PDE - 319	.....	.....	.....	.....	.....
	3	Operating instructions (English)	PRB1210	.....	PRB1210	.....	.....	PRB1210
	3	Operating instructions (English, Spanish, Chinese)	.....	PRE1196	.....	.....	PRE1196	.....
	3	Operating instructions (English, French, German, Italian, Dutch, Swedish, Spanish, Portuguese)	.....	.....	.....	PRE1194	.....	.....
	13	Spacer	.....	.....	PHC1075	.....	.....	.....
	12	Polyethylene bag (for HB plug)	.....	.....	Z21 - 013	.....	.....	.....

NOTE: *1.....PACKING A, *2.....PACKING B, *3.....PACKING C (Refer to page 2-3.)

• FOR PD-203/KUXJ TYPE

Parts List

Mark	No.	Description	Part No.
	1	Connection cord with mini plug	PDE - 319
	2	Connection cord with pin plug	PDE1248
	3	Operating instructions (English)	PRB1210
	4	Remote control unit	PWW1061
	5	Protector F	PHA1239
	6	Protector R	PHA1260
	7	CD packing case	PHG2020
	8	Sheet	Z23 - 007
	9	Battery cover	PZN1010
NSP	10	Dry cell battery (R03, AAA)	VEM - 022
NSP	11	Warranty card	ARY1044
	12	.....	
	13	.....	

■ FOR PD-103

• PART NUMBER DIFFERENCES BETWEEN PD-103/KUXJ, KCXJ, RD, WBXK, WEMXK, WL AND WPW TYPES.

Part number differs between PD-103/KUXJ, KCXJ, RD, WBXK, WEMXK, WL and WPW.

Mark	No.	Description	Part No.						
			KUXJ type *1	KCXJ type *1	RD type *2	WBXK type *3	WEMXK type *1	WL type *2	WPW type *2
NSP	11	Warranty card	ARY1044	ARY1039	.....	ARW - 088	ARW - 088	.....	ARY1067
	6	Protector R	PHA1260	PHA1260	PHA1240	PHA1254	PHA1260	PHA1240	PHA1240
	7	CD packing case	PHG2008	PHG2009	PHG2013	PHG2038	PHG2037	PHG2012	PHG2012
	1	Connection cord with mini plug	PDE - 319	PDE - 319	.....	PDE - 319	PDE - 319	.....	PDE - 319
	3	Operating instructions (English)	PRB1210	.....	.....	PRB1210	.....	.....	PRB1210
	3	Operating instructions (English, French)	.....	PRE1195	.....	.....	.....	.....	.....
	3	Operating instructions (English, Spanish, Chinese)	.....	.....	PRE1196	.....	.....	PRE1196	.....
	3	Operating instructions (English, French, German, Italian, Dutch, Swedish, Spanish, Portuguese)	.....	.....	.....	.....	PRE1194	.....	.....
	13	Spacer	.....	.....	.....	PHC1075	.....	.....	.....
	12	Polyethylene bag (for HB plug)	.....	.....	.....	Z21 - 013	.....	.....	.....

NOTE: *1.....PACKING A, *2.....PACKING B, *3.....PACKING C (Refer to page 2-3.)

• FOR PD-103/KUXJ TYPE

Parts List

Mark	No.	Description	Part No.
	1	Connection cord with mini plug	PDE - 319
	2	Connection cord with pin plug	PDE1248
	3	Operating instructions (English)	PRB1210
	4	.....	
	5	Protector F	PHA1239
	6	Protector R	PHA1260
	7	CD packing case	PHG2008
	8	Sheet	Z23 - 007
	9	.....	
NSP	10	.....	
NSP	11	Warranty card	ARY1044
	12	.....	
	13	.....	

1.7.2 EXTERIOR

■ FOR PD-203

• PART NUMBER DIFFERENCES BETWEEN PD-203/KUXJ, RD, WBXK, WEMXK, WL AND WPW TYPES.

Part number differs between PD-203/KUXJ, RD, WBXK, WEMXK, WL and WPW.

Mark	No.	Description	Part No.					
			KUXJ type	RD type	WBXK type	WEMXK type	WL type	WPW type
NSP	12	Cord stopper	CM - 22C	CM - 22B	CM - 22B	CM - 22B	CM - 22B	CM - 22B
	8	Insulator assy	DXA1490	.....	.....	.....	.....	.....
	8	Insulator	.....	.....	PNW1912	PNW1912	.....	.....
	8	Foot assy	.....	PXA1201	.....	.....	PXA1201	PXA1201
	33	65 label	ORW1069	.....	.....	.....	.....	.....
	15	MOTHER BOARD ASSY	PWM1877	PWM1879	PWM1878	PWM1878	PWM1878	PWM1878
	5	Single mechanism assy	PXA1487	PXA1545	PXA1487	PXA1487	PXA1545	PXA1545
	18	Rear base	PNA2101	PNA2106	PNA2104	PNA2103	PNA2107	PNA2105
	9	Power transformer (AC120V)	PTT1237	.....	.....	.....	.....	.....
	9	Power transformer (AC110 - 127/220 - 240V)	.....	PTT1238	.....	.....	.....	.....
	9	Power transformer (AC220 - 240V)	.....	.....	PTT1236	PTT1236	PTT1236	PTT1236
	20	Display window	PAM1599	PAM1599	PAM1602	PAM1602	PAM1599	PAM1599
	13	AC power cord	PDG1002	PDG1056	PDG1055	PDG1003	PDG1003	RDG1022

• FOR PD-203/KUXJ TYPE

Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
NSP	1	Bonnet	PYY1147	NSP	21	Name plate	PAM1608
	2	Screw	FBT40P080FZK		22	Function panel	PNW2403
	3	Screw	BBZ30P080FZK		23	Mode button	PAC1709
	4	Screw	BBZ30P160FMC		24	Under base	PNA1732
	5	Single mechanism assy	PXA1487		25	10 key - 1	PAC1710
NSP	6	Tray name plate	PNW2240	NSP	26	Function button	PAC1711
	7	PCB spacer	PNY - 404		27	LED lens	PNW2019
	8	Insulator assy	DXA1490		28	Power button	PAC1708
	9	Power transformer	PTT1237		29	SW BOARD ASSY	PWZ2518
	10	Screw	IBZ30P100FCC		30	Screw	PPZ30P120FMC
NSP	11	Screw	IBZ30P150FCC	NSP	31	FUNCTION BOARD ASSY	PWZ2818
	12	Cord stopper	CM - 22C		32	32P F.F.C./30V	PDD1041
	13	AC power cord	PDG1002		33	65 label	ORW1069
	14	Screw	BBZ30P060FMC		34	Screw	PDZ30P050FMC
	15	MOTHER BOARD ASSY	PWM1877				
NSP	16	HEADPHONE BOARD ASSY	PWZ2522				
	17	Headphone knob	PAC1707				
	18	Rear base	PNA2101				
	19	.....	.....				
	20	Display window	PAM1599				

■ FOR PD-103

• PART NUMBER DIFFERENCES BETWEEN PD-103/KUXJ, KCXJ, RD, WBXK, WEMXK, WL AND WPW TYPES.

Part number differs between PD-103/KUXJ, KCXJ, RD, WBXK, WEMXK, WL and WPW.

Mark	No.	Description	Part No.						
			KUXJ type	KCXJ type	RD type	WBXK type	WEMXK type	WL type	WPW type
△	12	Cord stopper	CM - 22C	CM - 22	CM - 22B	CM - 22B	CM - 22B	CM - 22B	CM - 22B
	8	Insulator assy	DXA1490	DXA1490	.....	.....	.....	.....	.....
	8	Insulator	.....	.....	.....	PNW1912	PNW1912	.....	.....
	8	Foot assy	.....	.....	PXA1201	.....	.....	PXA1201	PXA1201
	33	65 label	ORW1069	.....	.....	.....	.....	.....	.....
NSP	15	MOTHER BOARD ASSY	PWM1872	PWM1872	PWM1875	PWM1873	PWM1873	PWM1876	PWM1874
	16	HEADPHONE BOARD ASSY	PWZ2522	PWZ2522	.....	PWZ2522	PWZ2522	.....	.....
NSP	5	Single mechanism assy	PXA1487	PXA1487	PXA1545	PXA1487	PXA1487	PXA1545	PXA1545
△	18	Rear base	PNA2088	PNA2089	PNA2090	PNA2123	PNA2122	PNA2091	PNA2092
	9	Power transformer (AC120V)	PTT1237	PTT1237	.....	.....	.....	.....	.....
△	9	Power transformer	.....	.....	PTT1238	.....	.....	.....	.....
△	9	Power transformer (AC110 - 127/220 - 240V)	.....	.....	.....	PTT1236	PTT1236	PTT1236	PTT1236
△	20	Display window	PAM1596	PAM1596	PAM1626	PAM1611	PAM1611	PAM1626	PAM1626
△	13	AC power cord	PDG1002	RDG1010	PDG1056	PDG1055	PDG1003	PDG1003	RDG1022
	17	Headphone knob	PAC1707	PAC1707	.....	PAC1707	PAC1707	.....	.....
	22	Function panel	PNW2393	PNW2393	PNW2395	PNW2393	PNW2393	PNW2395	PNW2394

• FOR PD-103/KUXJ TYPE

Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
NSP	1	Bonnet	PYY1147	NSP	21	Name plate	PAM1608
	2	Screw	FBT40P080FZK		22	Function panel	PNW2393
	3	Screw	BBZ30P080FZK		23	Mode button	PAC1709
	4	Screw	BBZ30P160FMC		24	Under base	PNA1732
	5	Single mechanism assy	PXA1487		25	10 key - 1	PAC1710
NSP	6	Tray name plate	PNW2240	NSP	26	Function button	PAC1711
	7	PCB spacer	PNY - 404		27	LED lens	PNW2019
△	8	Insulator assy	DXA1490		28	Power button	PAC1708
	9	Power transformer	PTT1237		29	SW BOARD ASSY	PWZ2518
△	10	Screw	IBZ30P100FCC		30	Screw	PPZ30P120FMC
△	11	Screw	IBZ30P150FCC		31	FUNCTION BOARD ASSY	PWZ2817
	12	Cord stopper	CM - 22C		32	30P F.F.C/30V	PDD1049
	13	AC power cord	PDG1002		33	65 label	ORW1069
	14	Screw	BBZ30P060FMC		34	Screw	PDZ30P050FMC
	15	MOTHER BOARD ASSY	PWM1872				
NSP	16	HEADPHONE BOARD ASSY	PWZ2522				
	17	Headphone knob	PAC1707				
	18	Rear base	PNA2088				
	19	.....					
	20	Display window	PAM1596				

1.7.3 SINGLE MECHANISM ASSY

■ FOR PD-203 AND PD-103

• PART NUMBER DIFFERENCES BETWEEN PXA1487 AND PXA1545.

Part number differs between PXA1487 and PXA1545.

Mark	No.	Description	Part No.	
			PXA1487	PXA1545
NSP	43	Servo mechanism assy	PXA1478	PXA1546

Although servo mechanism assy PXA1478 and PXA1546 are different in part number, they consist of the same components.

• FOR PXA1487

Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
NSP	1	Lever switch (CLAMP)	DSK1003	NSP	36	Mechanism board assy	PWX1192
	2	Float screw	PBA1048	NSP	37	Clamp magnet	PMF1014
	3	Rubber belt	PEB1193	NSP	38	Yoke	PNB1216
	4	Motor pulley	PNW1634	NSP	39	H spacer	PEB1249
	5	Tray	PNW2455	NSP	40	Clamper S	PNW1609
	6	Float base	PNW2032		41	Loading base	PNW2376
	7	Drive gear 2	PNW2369		42	DC motor assy	PEA1246
	8	Gear pulley	PNW2034			(CARRIAGE)	
	9	Clamper base	PNW2375	NSP	43	Servo mechanism assy	PXA1478
	10	Clamp cam	PNW2364		44	Screw	BBZ30P080FZK
	11	DC motor/0.75W (LOADING)	PXM1010		45	Connector assy (4P)	PDE1238
	12	Float rubber	PEB1014		46	Connector assy (5P)	PDE1239
	13	Float rubber	PEB1132				
	14	Screw	BPZ26P080FMC				
	15	Screw	Z39 - 019				
NSP	16	Screw	PMZ26P040FMC				
	17	Pinion gear	PNW2055				
	18	DC motor (CARRIAGE)	PXM1027				
	19	DC motor assy (SPINDLE)	PEA1235				
	20	Carriage base	PNW2445				
	21	Disc table	PNW1608				
	22	Screw	JFZ20P030FNI				
	23	Screw	JFZ17P025FZK				
	24	Gear 3	PNW2054				
	25	Gear 2	PNW2053				
NSP	26	Washer	WT12D032D025				
	27	Pickup assy	PEA1179				
	28	Guide bar	PLA1094				
	29	Gear 1	PNW2052				
	30	Gear stopper	PNB1303				
NSP	31	Screw	BPZ20P060FMC				
	32	PWB holder	PNW2057				
	33	Screw	BPZ26P100FMC				
	34	Earth lead unit	PDF1104				
	35	Screw	BBZ26P060FMC				

1.8 PCB PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω $\rightarrow$ $56 \times 10^1 \rightarrow 561$ RD1/8PM $\boxed{5}\boxed{6}\boxed{1}$ J

47k Ω $\rightarrow$ $47 \times 10^3 \rightarrow 473$ RD1/4PS $\boxed{4}\boxed{7}\boxed{3}$ J

0.5 Ω $\rightarrow$ 0R5 RN2H $\boxed{0}\boxed{R}\boxed{5}$ K

1 Ω $\rightarrow$ 010 RS1P $\boxed{0}\boxed{1}\boxed{0}$ K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω $\rightarrow$ $562 \times 10^1 \rightarrow 5621$ RN1/4PC $\boxed{5}\boxed{6}\boxed{2}\boxed{1}$ F

1. FOR PD-203

LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol & Description	Part No.					
		KUXJ type	RD type	WBXK type	WEMXK type	WL type	WPW type
NSP	MOTHER BOARD ASSY	PWM1877	PWM1879	PWM1878	PWM1878	PWM1878	PWM1878
	MECHANISM BOARD ASSY	PXA1192	PXA1192	PXA1192	PXA1192	PXA1192	PXA1192
NSP	SUB BOARD ASSY	PWX1365	PWX1365	PWX1365	PWX1365	PWX1365	PWX1365
NSP	— SW BOARD ASSY	PWZ2518	PWZ2518	PWZ2518	PWZ2518	PWZ2518	PWZ2518
NSP	— HEADPHONE BOARD ASSY	PWZ2522	PWZ2522	PWZ2522	PWZ2522	PWZ2522	PWZ2522
	— FUNCTION BOARD ASSY	PWZ2818	PWZ2818	PWZ2818	PWZ2818	PWZ2818	PWZ2818

MOTHER BOARD ASSY

- PART NUMBER DIFFERENCES BETWEEN PWM1877, PWM1879 AND PWM1878.

Part number differs between PWM1877, PWM1879 and PWM1878.

Mark	Symbol & Description	Part No.			Remarks
		PWM1877	PWM1879	PWM1878	
	IC31, IC32	.....	ICP - N10	ICP - N10	
	D391 - D394	1SS254	.....	.....	
	S5	.....	PSB1006	.....	
	L391	LAU010K	.....	.....	
	C393	CCCSL101J50	.....	.....	
	C29	.....	.....	CEAS101M35	
	R391	RD1/6PM244J	.....	.....	
	R392	RD1/6PM102J	.....	.....	
	CN351 FFC CONNECTOR (32P)	HLEM32S	9604S - 32C	9604S - 32C	
	JA391, JA392 REMOTE CONTROL JACK	RKN1004	.....	.....	

Mark	No.	Description	Part No.
------	-----	-------------	----------

MOTHER BOARD ASSY (PWM1877)

SEMICONDUCTORS

	IC406	BA15218
	IC151	CXA1372Q
	IC301	CXD2500BQ
△	IC201, IC202	LA6520
	IC405	NJM4565D-D

△	IC22	NJM79L05A
	IC401	PD2026B
	IC351	PD4457A
△	IC21	PQ05RR12
	Q453, Q454	2SB1296

	Q391	2SC1740S
	Q403, Q404	2SD2144S
	Q451, Q452	DTA124ES
	Q322, Q405	DTC124ES
△	D11-D14, D52	11ES2

	D351, D391-D397	1SS254
	D54	MTZJ18B
	D218	MTZJ6. 2B

COILS AND FILTERS

	L391, L395, L396, L470, L471	LAU010K
	L351	LAU100K

CAPACITORS

	C403	CCCCH120J50
	C404	CCCCH220J50
	C429, C430, C435-C438	CCCCH390J50
	C393	CCCSL101J50
	C52	CEAS101M35

	C27, C28	CEAS330M16
	C26	CEAS331M16
	C25	CEAS332M16
	C351	CEAS471M6R3
	C160, C162, C451, C452	CEAS4R7M50

	C309	CEASR47M50
	C413-C416	CFTYA104J50
	C157, C164, C169, C218, C308	CGCYX103K25
	C158, C159, C161, C163, C301	CGCYX104K25
	C156, C168	CGCYX333K25

	C307	CGCYX473K25
	C306	CKCYB152K50
	C155	CKCYB182K50
	C170	CKCYB332K50
	C171, C172	CKCYB472K50

	C11, C13, C15, C16, C167	CKCYF103Z50
	C17, C205, C210, C215, C219	CKCYF103Z50
	C322, C353, C361, C461	CKCYF103Z50
	C433, C434 (220/25)	PCH1107
	C441, C442 (0.0015/50)	PCL1030

RESISTORS

	VR151, VR152 (22K)	PCP1030
	Other Resistors	RD1/6PM□□□J

OTHERS

	CN131 FPC CONNECTOR(12P)	12FMZ-ABT
	CN401 JUMPER CONNECTOR(3P)	52147-0310

Mark	No.	Description	Part No.
------	-----	-------------	----------

	CN351 FFC CONNECTOR(32P)	9604S-32C
	JA401 PIN JACK(2P)	PKB1009
	JA391, JA392 REMOTE CONTROL JACK	RKN1004

	JA393 MINI JACK	PKN1005
△	X401 CRYSTAL RESONATOR(16.9344MHz)	PSS1008
	RAPPING TAMINAL	RKC-061
	CN202 AMP CONNECTOR(4P)	VKN1051
	CN205 AMP CONNECTOR(5P)	VKN1052

	CN201 CONNECTOR(6P)	RKP-533
	X351 CERAMIC RESONATOR(4.19MHz)	VSS1028

SW BOARD ASSY

SEMICONDUCTORS

	D801	PCX1019
--	------	---------

SWITCHES AND RELAYS

	S801	PSG1006
--	------	---------

HEADPHONE BOARD ASSY

COILS AND FILTERS

	L501, L504, L505	LAU010K
--	------------------	---------

CAPACITORS

	C501, C502	CKCYF103Z50
	C503	CKCYF473Z50

RESISTORS

	VR501 (5K)	PCS1003
	Other Resistors	RD1/6PM□□□J

OTHERS

	JA501 HEADPHONE JACK	RKN1002
--	----------------------	---------

FUNCTION BOARD ASSY

SEMICONDUCTORS

	D701-D707	1SS254
--	-----------	--------

SWITCHES AND RELAYS

	S701-S708, S710-S724	PSG1006
	S726-S728	PSG1006

RESISTORS

	All Resistors	RD1/6PM□□□J
--	---------------	-------------

OTHERS

	CN701 CONNECTOR	9604S-32F
	V701 FL INDICATOR TUBE	PEL1085

MECHANISM BOARD ASSY

SWITCHES AND RELAYS

	S610	DSG1016
--	------	---------

2. FOR PD-103

LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol & Description	Part No.						
		KUXJ type	KCXJ type	RDtype	WBXK type	WEMXK type	WL type	WPW type
NSP	MOTHER BOARD ASSY	PWM1872	PWM1872	PWM1875	PWM1873	PWM1873	PWM1876	PWM1874
	MECHANISM BOARD ASSY	PXA1192	PXA1192	PXA1192	PXA1192	PXA1192	PXA1192	PXA1192
NSP	SUB BOARD ASSY	PWX1363	PWX1363	PWX1364	PWX1363	PWX1363	PWX1364	PWX1364
NSP	— SW BOARD ASSY	PWZ2518	PWZ2518	PWZ2518	PWZ2518	PWZ2518	PWZ2518	PWZ2518
NSP	— HEADPHONE BOARD ASSY	PWZ2522	PWZ2522	.....	PWZ2522	PWZ2522	.....	.....
	— FUNCTION BOARD ASSY	PWZ2817	PWZ2817	PWZ2817	PWZ2817	PWZ2817	PWZ2817	PWZ2817

MOTHER BOARD ASSY

• PART NUMBER DIFFERENCES BETWEEN PWM1872, PWM1875, PWM1873, PWM1876 AND PWM1874.

Part number differs between PWM1872, PWM1875, PWM1873, PWM1876 and PWM1874.

Mark	Symbol & Description	Part No.					Remarks
		PWM1872	PWM1875	PWM1873	PWM1876	PWM1874	
	IC31, IC32	.....	ICP - N10	ICP - N10	ICP - N10	ICP - N10	
	IC406	BA15218	.....	BA15218	BA15218	.....	
	Q451, Q452	.....	.....	DTA124ES	.....	.....	
	Q453, Q454	.....	.....	2SB1296	.....	.....	
	D392 - D394	1SS254	.....	1SS254	.....	1SS254	
	S5	.....	PSB1006	.....	.....	.....	
	L391	LAU010K	.....	LAU010K	.....	LAU010K	
	L470, L471	LAU010K	.....	LAU010K	.....	.....	
	C393	CCCSL101J50	.....	CCCSL101J50	.....	CCCSL101J50	
	C451, C452	.....	.....	CEAS4R7M50	.....	.....	
	R392	RD1/6PM102J	.....	RD1/6PM102J	.....	RD1/6PM102J	
	R445, R446	RD1/6PM471J	RD1/6PM102J	RD1/6PM271J	RD1/6PM102J	RD1/6PM102J	
	R447, R448	RD1/6PM471J	.....	RD1/6PM471J	.....	.....	
	R451, R452	.....	.....	RD1/6PM473J	.....	.....	
	R453, R454	.....	.....	RD1/6PM470J	.....	.....	
	R455 - R458	.....	.....	RD1/6PM102J	.....	.....	
	R459 - R462	.....	.....	RD1/6PM271J	.....	.....	
	CN401 JUMPER CONNECTOR (3P)	52147 - 0310	.....	52147 - 0310	.....	.....	
	JA391, JA392 REMOTE CONTROL JACK	RKN1004	.....	RKN1004	.....	RKN1004	

Mark	No.	Description	Part No.
------	-----	-------------	----------

MOTHER BOARD ASSY (PWM1872)
SEMICONDUCTORS

	IC406	BA15218
	IC151	CXA1372Q
	IC301	CXD2500BQ
⚠	IC201, IC202	LA6520
	IC405	NJM4558D-D

⚠	IC22	NJM79L05A
	IC401	PD2026B(L)
	IC351	PD4457A
⚠	IC21	PQ05RR12
	Q391	2SC1740S

	Q403, Q404	2SD2144S
	Q322, Q405	DTC124ES

⚠	D11-D14, D52	11ES2
	D351, D392-D397	1SS254
	D54	MTZJ18B

	D218	MTZJ6. 2B
--	------	-----------

COILS AND FILTERS

	L391, L395, L396, L470, L471	LAU010K
	L351	LAU100K

CAPACITORS

	C403	CCCCH120J50
	C404	CCCCH220J50
	C429, C430, C435-C438	CCCCH390J50
	C393	CCCSL101J50
	C52	CEAS101M35

	C26	CEAS102M16
	C433, C434	CEAS220M25
	C27, C28	CEAS330M16
	C25	CEAS332M16
	C351	CEAS471M6R3

	C160, C162	CEAS4R7M50
	C309	CEASR47M50
	C413-C416	CFTYA104J50
	C157, C164, C169, C218, C308	CGCYX103K25
	C158, C159, C161, C163, C301	CGCYX104K25

	C156, C168	CGCYX333K25
	C307	CGCYX473K25
	C306	CKCYB152K50
	C155	CKCYB182K50
	C170	CKCYB332K50

	C171, C172	CKCYB472K50
	C11, C13, C15, C16, C167	CKCYF103Z50
	C17, C205, C210, C215, C219	CKCYF103Z50
	C322, C353, C361, C461	CKCYF103Z50
	C441, C442 (0.0015/50)	PCL1030

RESISTORS

	VR151, VR152 (22K)	PCP1030
	Other Resistors	RD1/6PM□□□J

OTHERS

	CN131 FPC CONNECTOR(12P)	12FMZ-ABT
	CN401 JUMPER CONNECTOR(3P)	52147-0310

Mark	No.	Description	Part No.
------	-----	-------------	----------

	CN351 FFC CONNECTOR(30P)	9604S-30C
	JA401 PIN JACK(2P)	PKB1009
	JA393 MINI JACK	PKN1005

⚠	X401 CRYSTAL RESONATOR	PSS1008
	RAPPING TERMINAL	RKC-061
	JA391, JA392 REMOTE CONTROL JACK	RKN1004
	CN201 CONNECTOR(6P)	RKP-533
	CN202 AMP CONNECTOR(4P)	VKN1051

	CN205 AMP CONNECTOR(5P)	VKN1052
	X351 CERAMIC RESONATOR(4.19MHz)	VSS1028

SW BOARD ASSY
SEMICONDUCTORS

	D801	PCX1019
--	------	---------

SWITCHES AND RELAYS

	S801	PSG1006
--	------	---------

HEADPHONE BOARD ASSY
COILS AND FILTERS

	L501, L504, L505	LAU010K
--	------------------	---------

CAPACITORS

	C501, C502	CKCYF103Z50
	C503	CKCYF473Z50

RESISTORS

	VR501 (5K)	PCS1003
	Other Resistors	RD1/6PM□□□J

OTHERS

	JA501 HEADPHONE JACK	RKN1002
--	----------------------	---------

FUNCTION BOARD ASSY
SEMICONDUCTORS

	D701-D707	1SS254
--	-----------	--------

SWITCHES AND RELAYS

	S701-S708, S710-S724	PSG1006
	S726-S728	PSG1006

RESISTORS

	All Resistors	RD1/6PM□□□J
--	---------------	-------------

OTHERS

	CN701 CONNECTOR	9604S-30F
	V701FL INDICATOR TUBE	PEL1085

MECHANISM BOARD ASSY
SWITCHES AND RELAYS

	S610	DSG1016
--	------	---------

2. FOR PD-103

LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol & Description	Part No.						
		KUXJ type	KCXJ type	RDtype	WBXK type	WEMXK type	WL type	WPW type
NSP	MOTHER BOARD ASSY	PWM1872	PWM1872	PWM1875	PWM1873	PWM1873	PWM1876	PWM1874
	MECHANISM BOARD ASSY	PXA1192	PXA1192	PXA1192	PXA1192	PXA1192	PXA1192	PXA1192
NSP	SUB BOARD ASSY	PWX1363	PWX1363	PWX1364	PWX1363	PWX1363	PWX1364	PWX1364
NSP	— SW BOARD ASSY	PWZ2518	PWZ2518	PWZ2518	PWZ2518	PWZ2518	PWZ2518	PWZ2518
NSP	— HEADPHONE BOARD ASSY	PWZ2522	PWZ2522	.....	PWZ2522	PWZ2522	.....	.....
	— FUNCTION BOARD ASSY	PWZ2817	PWZ2817	PWZ2817	PWZ2817	PWZ2817	PWZ2817	PWZ2817

MOTHER BOARD ASSY

• PART NUMBER DIFFERENCES BETWEEN PWM1872, PWM1875, PWM1873, PWM1876 AND PWM1874.

Part number differs between PWM1872, PWM1875, PWM1873, PWM1876 and PWM1874.

Mark	Symbol & Description	Part No.					Remarks
		PWM1872	PWM1875	PWM1873	PWM1876	PWM1874	
	IC31, IC32	.....	ICP - N10	ICP - N10	ICP - N10	ICP - N10	
	IC406	BA15218	.....	BA15218	BA15218	.....	
	Q451, Q452	.....	.....	DTA124ES	.....	.....	
	Q453, Q454	.....	.....	2SB1296	.....	.....	
	D392 - D394	1SS254	.....	1SS254	.....	1SS254	
	S5	.....	PSB1006	.....	.....	.....	
	L391	LAU010K	.....	LAU010K	.....	LAU010K	
	L470, L471	LAU010K	.....	LAU010K	.....	.....	
	C393	CCCSL101J50	.....	CCCSL101J50	.....	CCCSL101J50	
	C451, C452	.....	.....	CEAS4R7M50	.....	.....	
	R392	RD1/6PM102J	.....	RD1/6PM102J	.....	RD1/6PM102J	
	R445, R446	RD1/6PM471J	RD1/6PM102J	RD1/6PM271J	RD1/6PM102J	RD1/6PM102J	
	R447, R448	RD1/6PM471J	.....	RD1/6PM471J	.....	.....	
	R451, R452	.....	.....	RD1/6PM473J	.....	.....	
	R453, R454	.....	.....	RD1/6PM470J	.....	.....	
	R455 - R458	.....	.....	RD1/6PM102J	.....	.....	
	R459 - R462	.....	.....	RD1/6PM271J	.....	.....	
	CN401 JUMPER CONNECTOR (3P)	52147 - 0310	.....	52147 - 0310	.....	.....	
	JA391, JA392 REMOTE CONTROL JACK	RKN1004	.....	RKN1004	.....	RKN1004	

Mark	No.	Description	Part No.
------	-----	-------------	----------

MOTHER BOARD ASSY (PWM1872)

SEMICONDUCTORS

	IC406	BA15218
	IC151	CXA1372Q
	IC301	CXD2500BQ
⚠	IC201, IC202	LA6520
	IC405	NJM4558D-D

⚠	IC22	NJM79L05A
	IC401	PD2026B(L)
	IC351	PD4457A
⚠	IC21	PQ05RR12
	Q391	ZSC1740S

	Q403, Q404	ZSD2144S
	Q322, Q405	DTC124ES

⚠	D11-D14, D52	11ES2
	D351, D392-D397	1SS254
	D54	MTZJ18B

	D218	MTZJ6. 2B
--	------	-----------

COILS AND FILTERS

	L391, L395, L396, L470, L471	LAU010K
	L351	LAU100K

CAPACITORS

	C403	CCCCH120J50
	C404	CCCCH220J50
	C429, C430, C435-C438	CCCCH390J50
	C393	CCCSL101J50
	C52	CEAS101M35

	C26	CEAS102M16
	C433, C434	CEAS220M25
	C27, C28	CEAS330M16
	C25	CEAS332M16
	C351	CEAS471M6R3

	C160, C162	CEAS4R7M50
	C309	CEASR47M50
	C413-C416	CFTYA104J50
	C157, C164, C169, C218, C308	CGCYX103K25
	C158, C159, C161, C163, C301	CGCYX104K25

	C156, C168	CGCYX333K25
	C307	CGCYX473K25
	C306	CKCYB152K50
	C155	CKCYB182K50
	C170	CKCYB332K50

	C171, C172	CKCYB472K50
	C11, C13, C15, C16, C167	CKCYF103Z50
	C17, C205, C210, C215, C219	CKCYF103Z50
	C322, C353, C361, C461	CKCYF103Z50
	C441, C442 (0.0015/50)	PCL1030

RESISTORS

	VR151, VR152 (22K)	PCP1030
	Other Resistors	RD1/6PM□□□J

OTHERS

	CN131 FPC CONNECTOR(12P)	12FMZ-ABT
	CN401 JUMPER CONNECTOR(3P)	52147-0310

Mark	No.	Description	Part No.
------	-----	-------------	----------

	CN351 FFC CONNECTOR(30P)	9604S-30C
	JA401 PIN JACK(2P)	PKB1009
	JA393 MINI JACK	PKN1005

⚠	X401 CRYSTAL RESONATOR	PSS1008
	RAPPING TERMINAL	RKC-061
	JA391, JA392 REMOTE CONTROL JACK	RKN1004
	CN201 CONNECTOR(6P)	RKP-533
	CN202 AMP CONNECTOR(4P)	VKN1051

	CN205 AMP CONNECTOR(5P)	VKN1052
	X351 CERAMIC RESONATOR(4.19MHz)	VSS1028

SW BOARD ASSY

SEMICONDUCTORS

	D801	PCX1019
--	------	---------

SWITCHES AND RELAYS

	S801	PSG1006
--	------	---------

HEADPHONE BOARD ASSY

COILS AND FILTERS

	L501, L504, L505	LAU010K
--	------------------	---------

CAPACITORS

	C501, C502	CKCYF103Z50
	C503	CKCYF473Z50

RESISTORS

	VR501 (5K)	PCS1003
	Other Resistors	RD1/6PM□□□J

OTHERS

	JA501 HEADPHONE JACK	RKN1002
--	----------------------	---------

FUNCTION BOARD ASSY

SEMICONDUCTORS

	D701-D707	1SS254
--	-----------	--------

SWITCHES AND RELAYS

	S701-S708, S710-S724	PSG1006
	S726-S728	PSG1006

RESISTORS

	All Resistors	RD1/6PM□□□J
--	---------------	-------------

OTHERS

	CN701 CONNECTOR	9604S-30F
	V701FL INDICATOR TUBE	PEL1085

MECHANISM BOARD ASSY

SWITCHES AND RELAYS

	S610	DSG1016
--	------	---------

Service Manual

COMPACT DISC PLAYER

PD-203

PD-103

CONTENTS

CHAPTER 2

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T - SSJ JAN. 1994 Printed in Japan

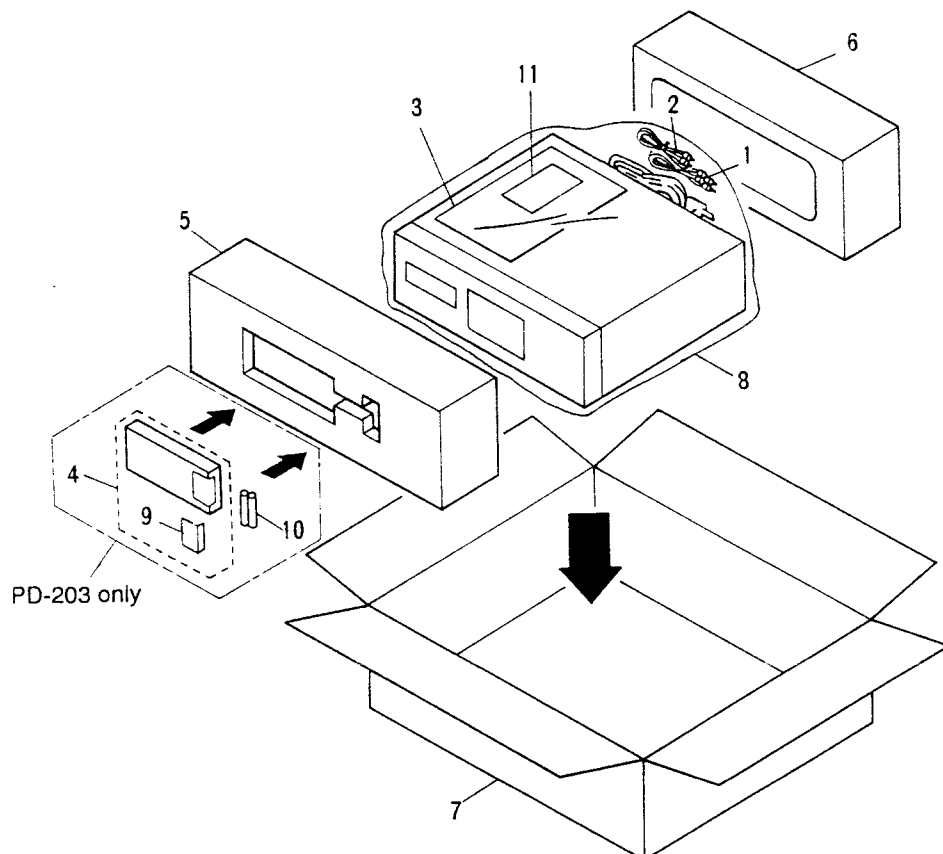
CHAPTER 2

2.1 PACKING AND EXPLODED VIEWS

● EXTERIOR

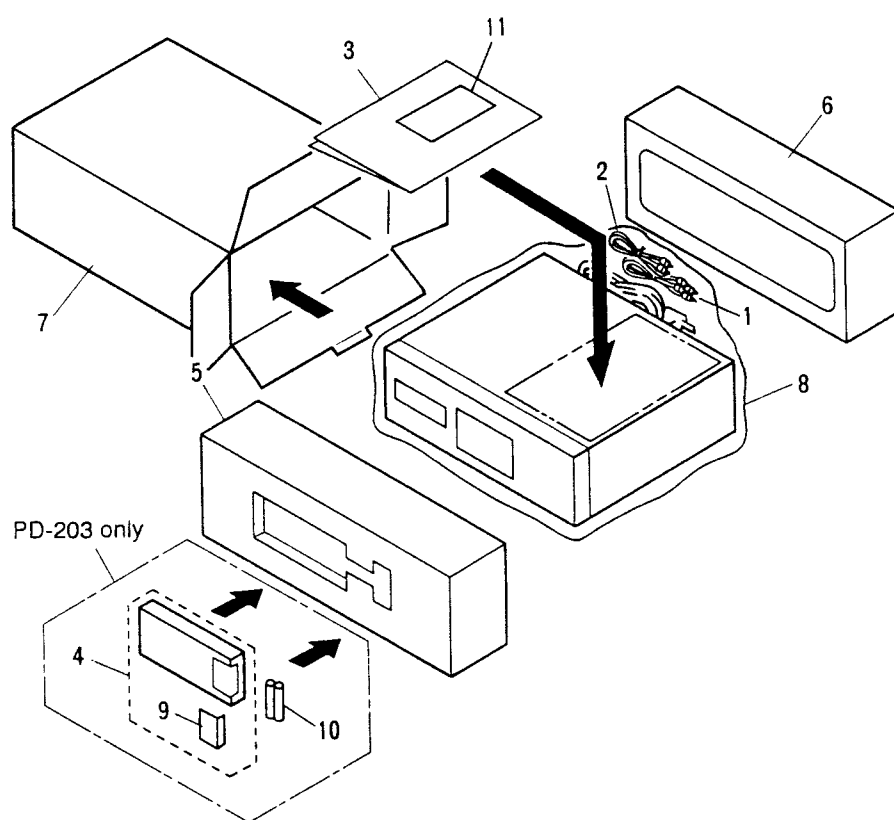
● PACKING A

(FOR PD-203/KUXJ, WEMXK AND PD-103/KUXJ, KCXJ, WEMXK types)



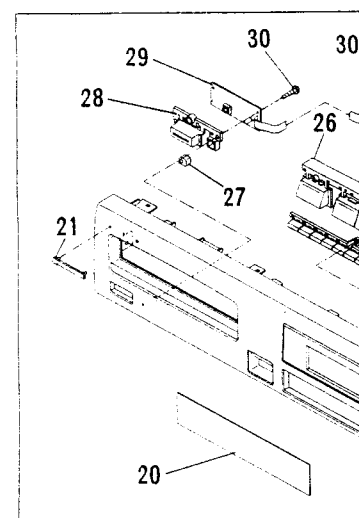
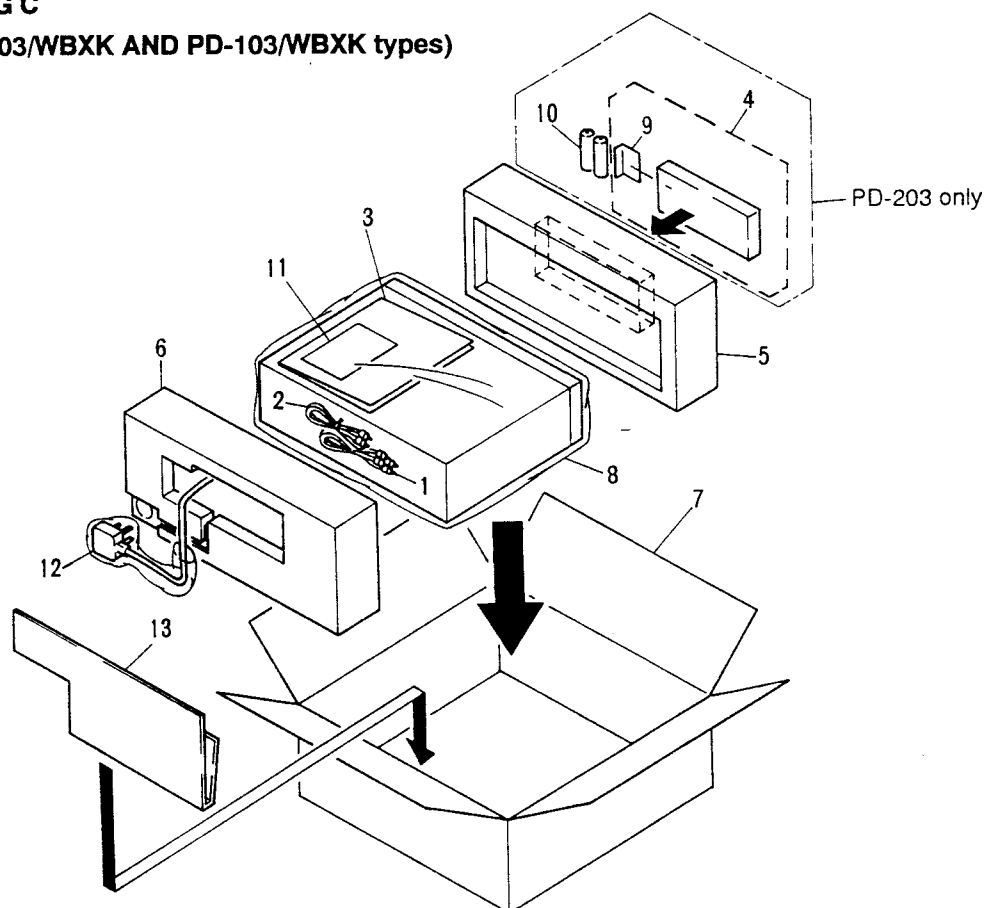
● PACKING B

(FOR PD-203/WPW, RD, WL AND PD-103/WPW, RD, WL types)

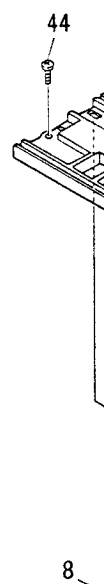


● PACKING C

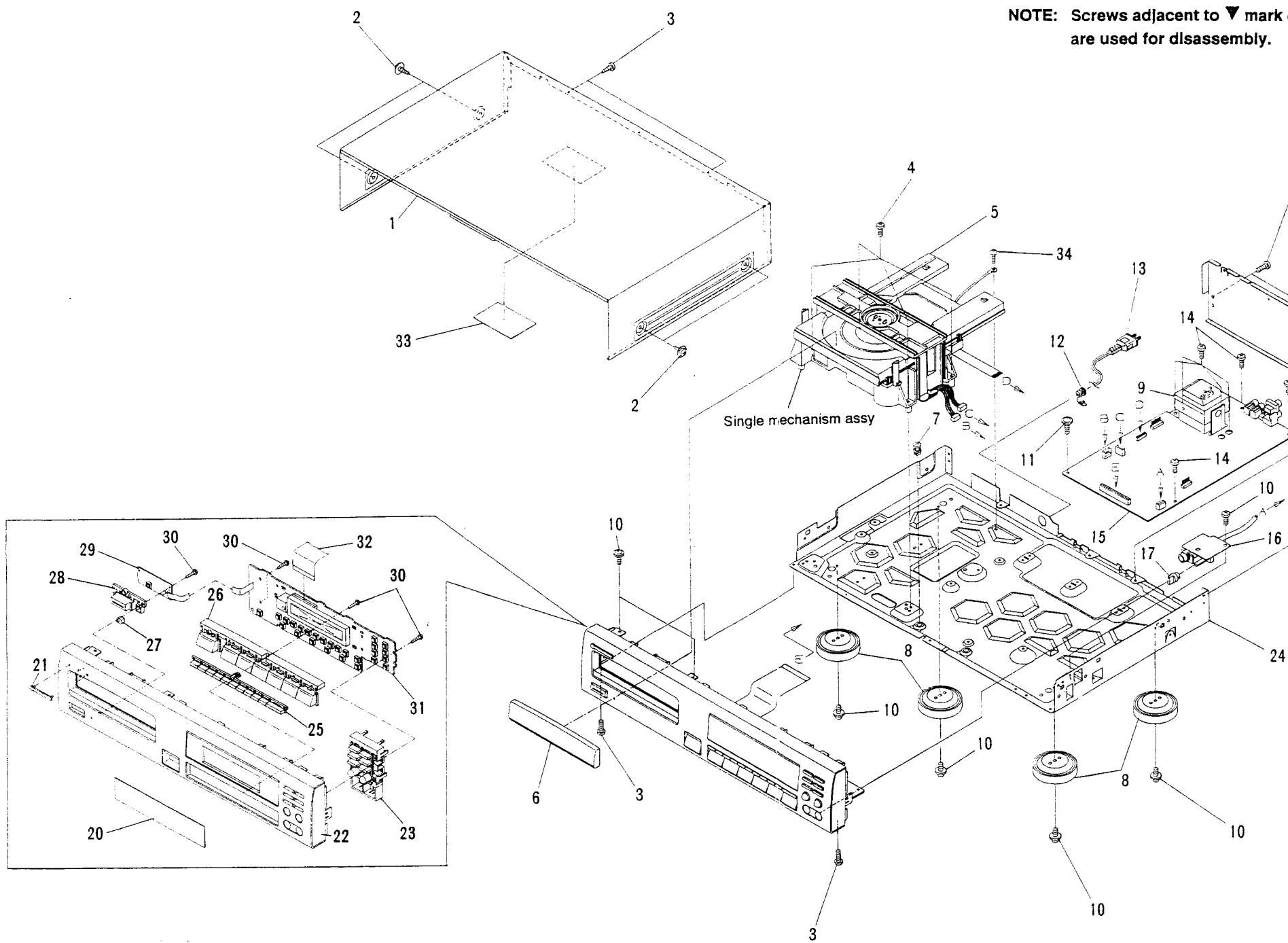
(FOR PD-203/WBXK AND PD-103/WBXK types)



● SINGLE MECHANISM ASSY

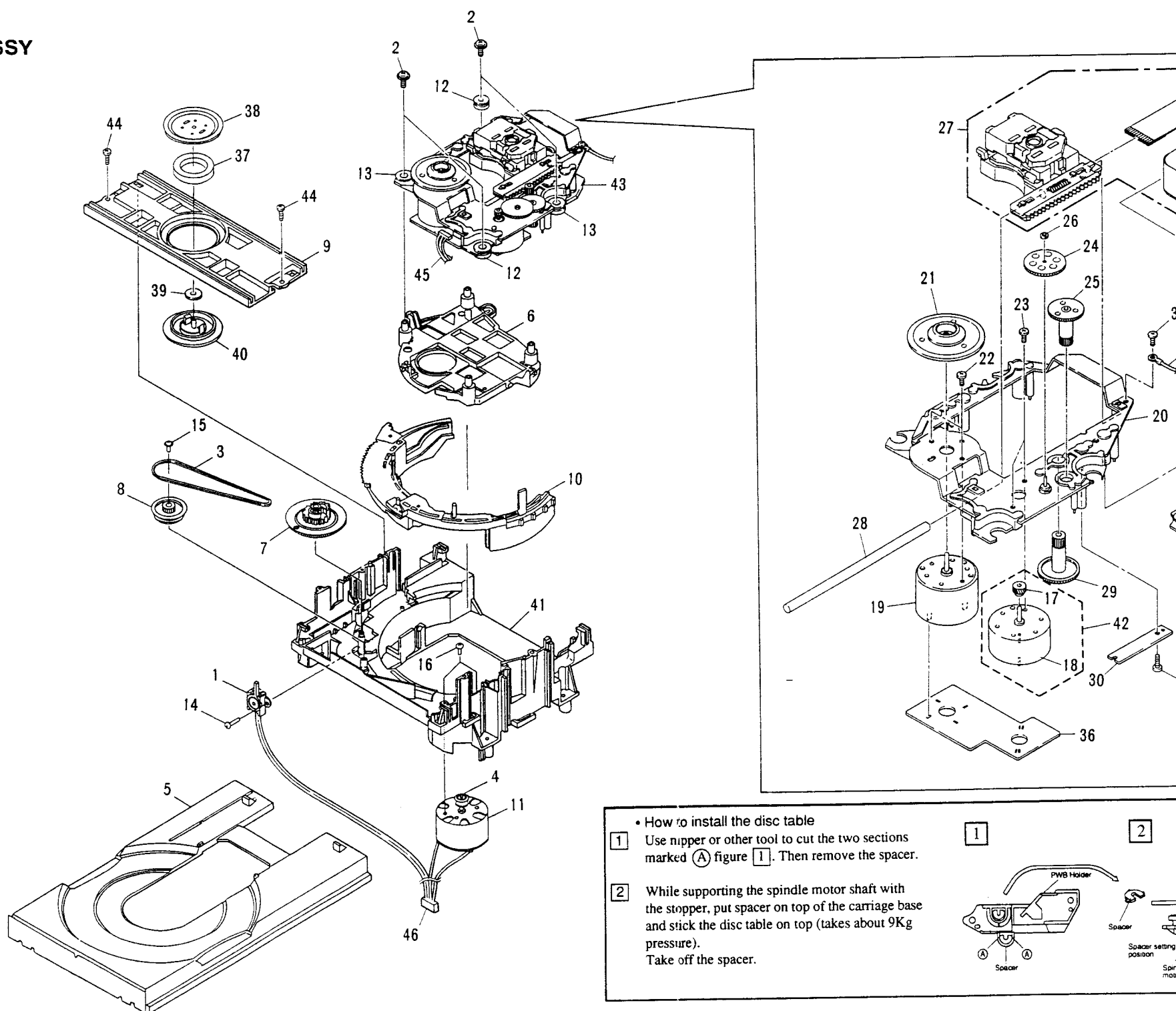


● EXTERIOR

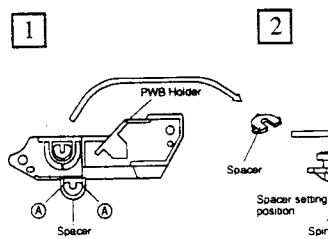


NOTE: Screws adjacent to ▼ mark are used for disassembly.

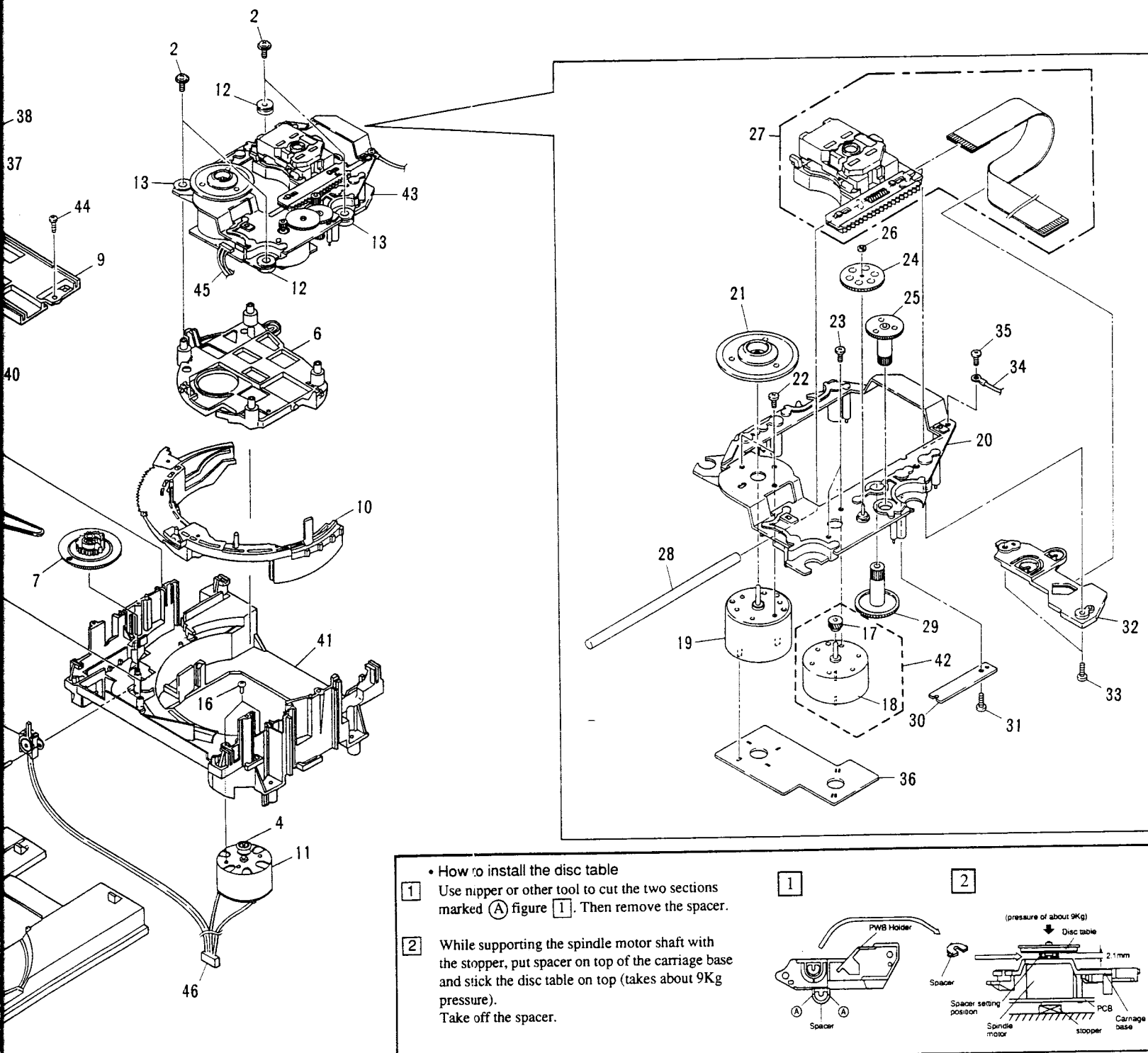
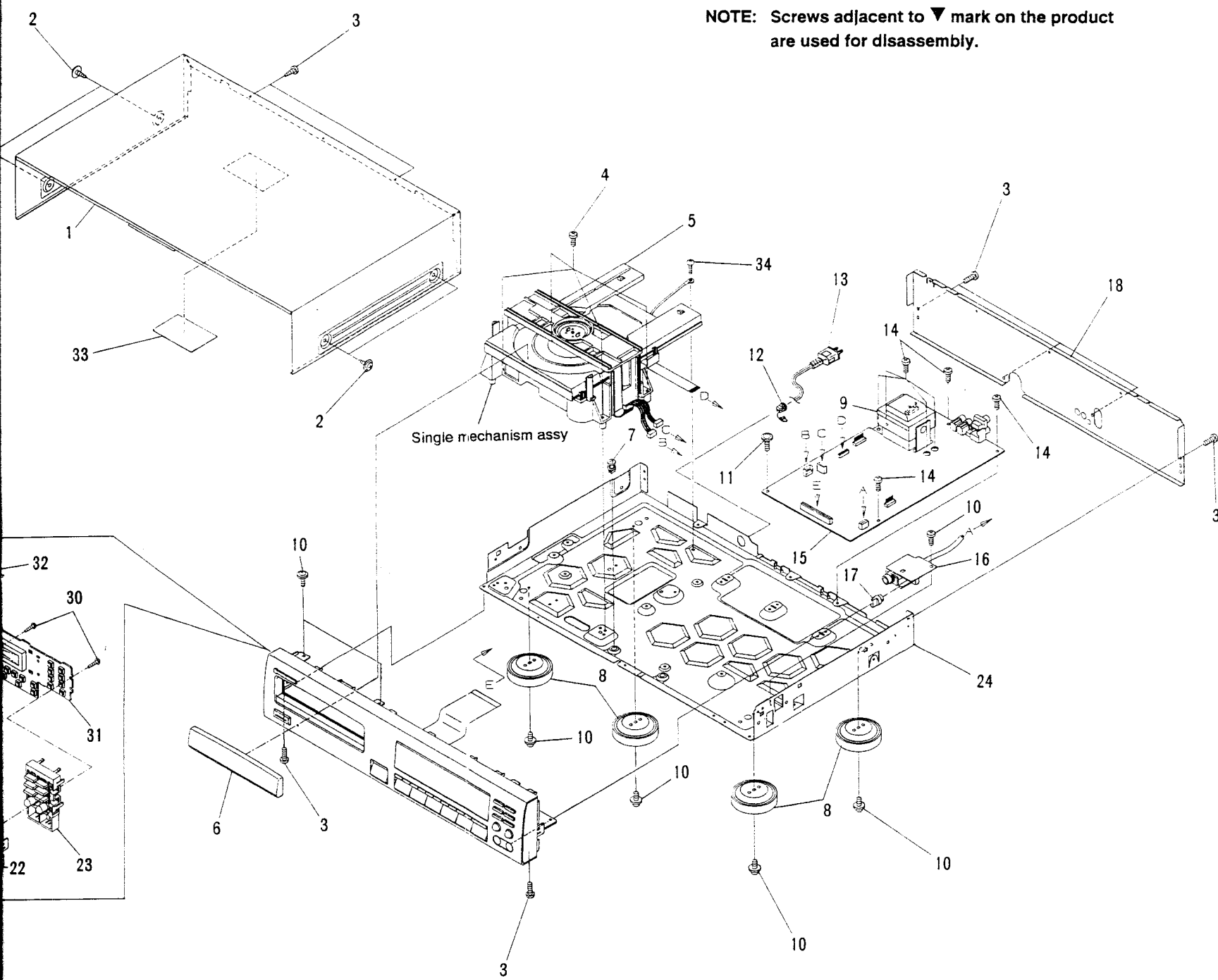
● SINGLE MECHANISM ASSY



- How to install the disc table
- 1 Use nipper or other tool to cut the two sections marked (A) figure 1. Then remove the spacer.
- 2 While supporting the spindle motor shaft with the stopper, put spacer on top of the carriage base and stick the disc table on top (takes about 9Kg pressure). Take off the spacer.

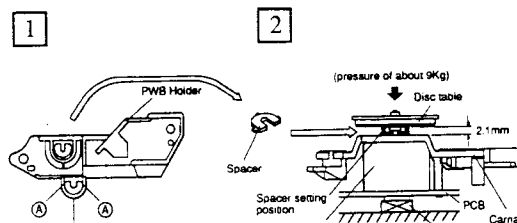


NOTE: Screws adjacent to ▼ mark on the product are used for disassembly.



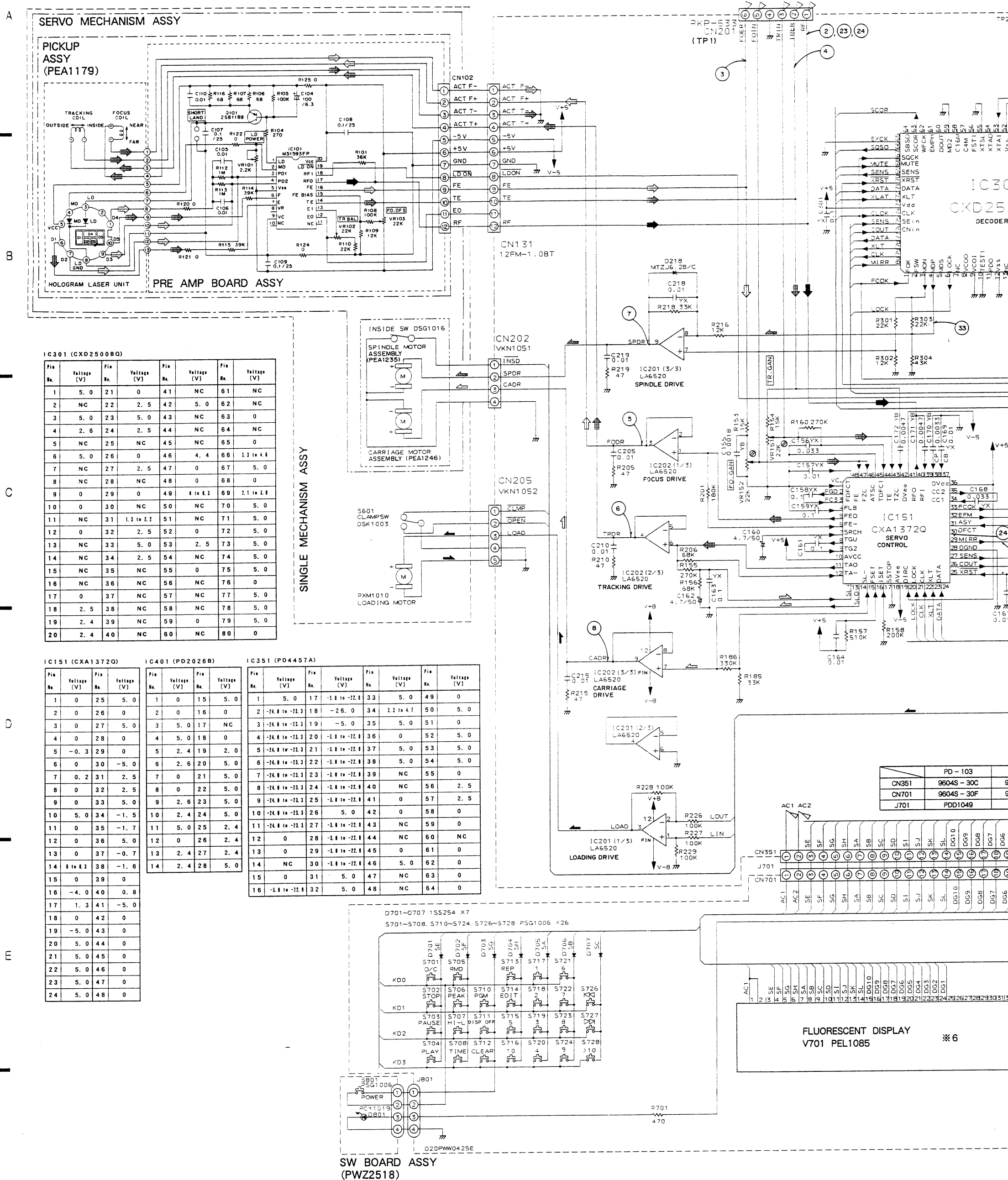
• How to install the disc table

- 1 Use nipper or other tool to cut the two sections marked (A) figure 1. Then remove the spacer.
- 2 While supporting the spindle motor shaft with the stopper, put spacer on top of the carriage base and stick the disc table on top (takes about 9Kg pressure). Take off the spacer.



2.2 SCHEMATIC DIAGRAM

● MOTHER BOARD, SW BOARD, FUNCTION BOARD, HEADPHONE BOARD, PICKUP AND PRE AMP BOARD ASSY

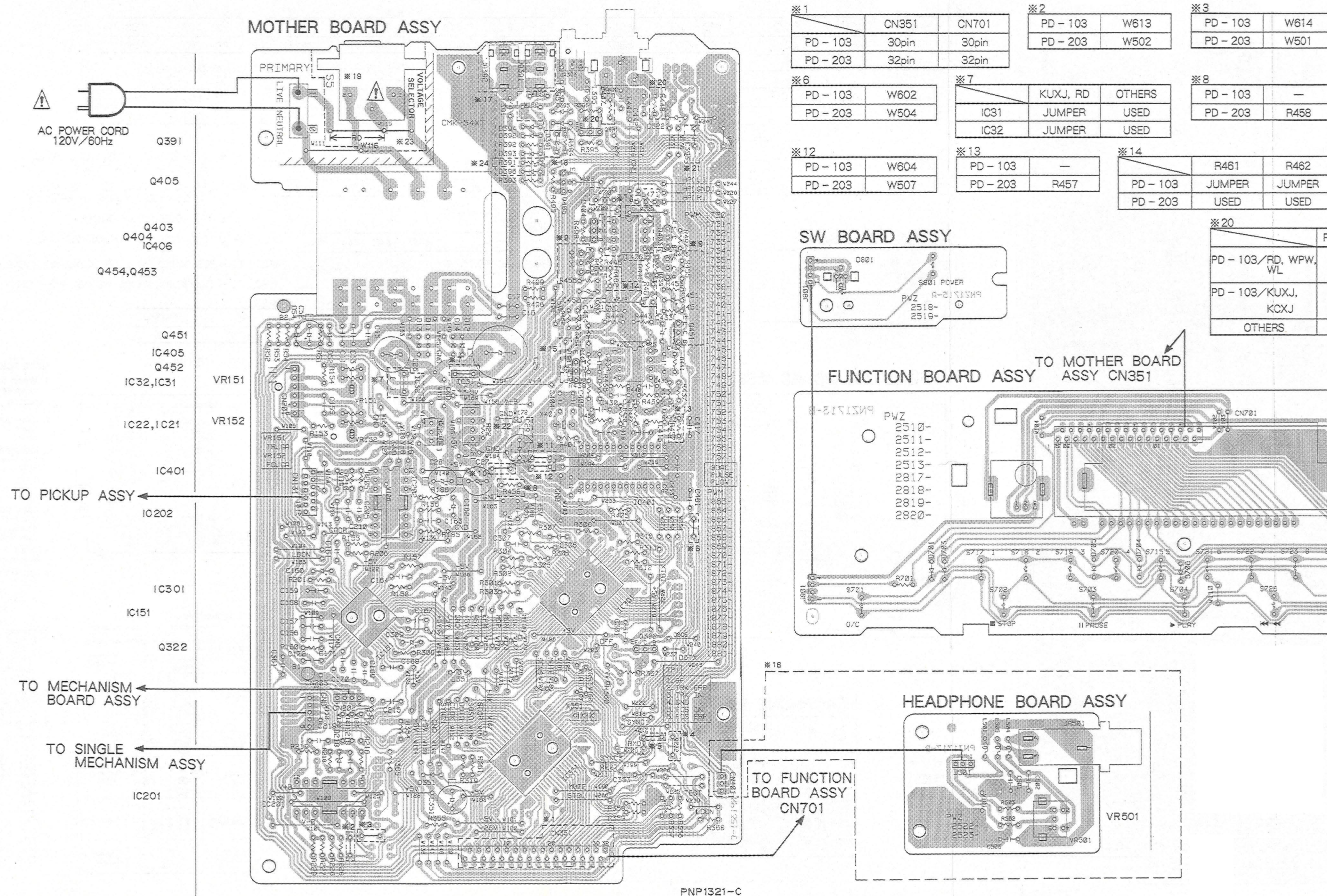


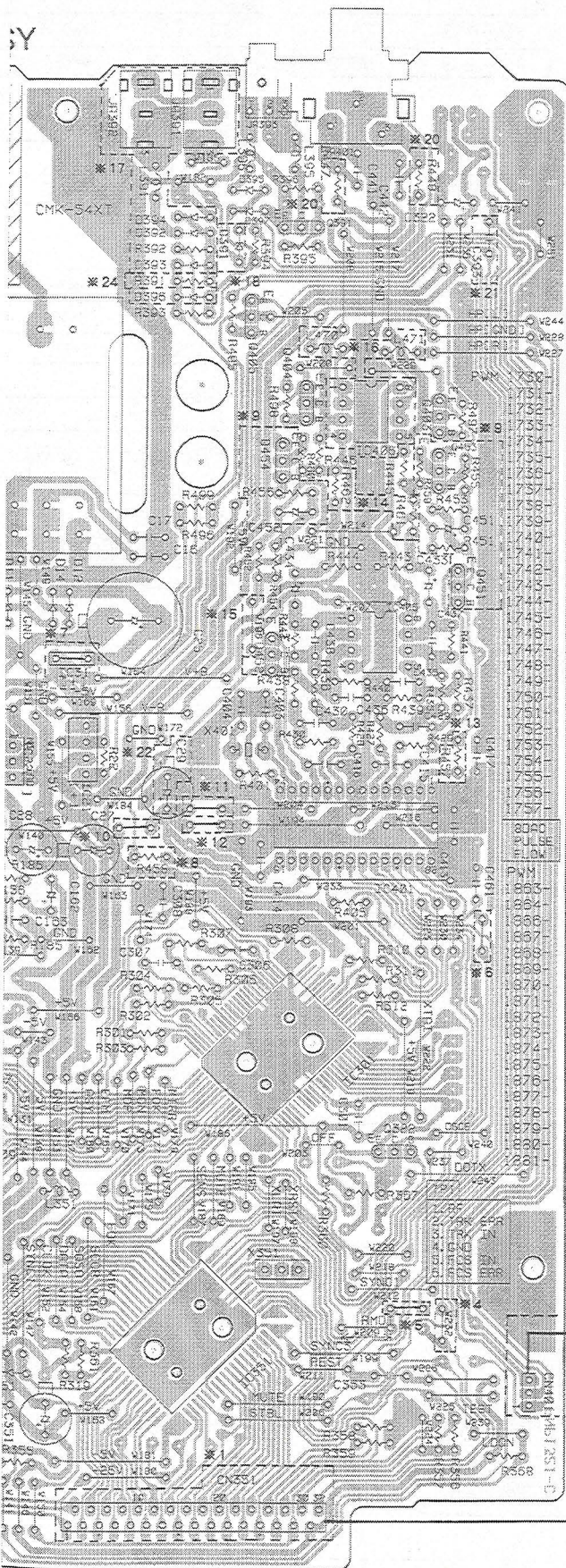
※2	
	PD - 103
	PD - 203
※3	
	PD - 103/KUX WPW, WL, K
	OTHER

*6 V701 PEL1085 FLUORESCENT DISPLAY

2.3 PCB CONNECTION DIAGRAM

• This diagram is viewed from the mounted parts side.





※1	CN351	CN701
PD - 103	30pin	30pin
PD - 203	32pin	32pin

PD - 103	W613
PD - 203	W502

PD - 103	W614
PD - 203	W501

PD - 103	—
PD - 203	W232

PD - 103	W601
PD - 203	W503

PD - 103	W602
PD - 203	W504

※7		
	KUXJ, RD	OTHERS
IC31	JUMPER	USED
IC32	JUMPER	USED

PD - 103	—
PD - 203	R458

※9: PD-203, PD-103/WBXX, WEMXX ONLY

PD - 103	W605
PD - 203	W508

PD - 103	W603
PD - 203	W506

PD - 103	W604
PD - 203	W507

PD - 103	—
PD - 203	R457

※14		
	R461	R462
PD - 103	JUMPER	JUMPER
PD - 203	USED	USED

PD - 103	—
PD - 203	W196

※16: PD - 203, PD - 103/KUXJ, KCXJ,
RD, WBXK, WEMXK ONLY

※17: PD-203/KUXJ, PD-103/KUXJ,
KCOXJ, WBXK, WEMXK, WPW ONLY

※18: PD-203/KUXJ ONLY

*19: PD-203/RD, PD-103/RD ONLY

※20	R445, R446	R447, R448
PD - 103/RD, WPW, WL	1K Ω	JUMPER
PD - 103/KUXJ, KCXJ	470 Ω	470 Ω
OTHERS	270 Ω	470 Ω

※21 : PD - 203/KUXJ, PD - 103/KUXJ, KCXJ ONLY

*22 : PD - 203/KUXJ, WBXK, WEMXK, WPW ONLY

RD	OTHER
W116	W115

*24: PD - 103/WL ONLY

NOTE FOR SCHEMATIC DIAGRAMS (Type 4A)

1. When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".

2. Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.

3. RESISTORS:
Unit: k: k Ω , M: M Ω , or Ω unless otherwise noted.
Rated power: 1/4W, 1/5W, 1/8W, 1/10W unless otherwise noted.
Tolerance: (F): $\pm 1\%$, (G): $\pm 2\%$, (K): $\pm 10\%$, (M): $\pm 20\%$ or $\pm 5\%$ unless otherwise noted.

4. CAPACITORS:
Unit: pF or μ F unless otherwise noted.
Ratings: capacitor (μ F)/ voltage (V) unless otherwise noted.
Rated voltage: 50V except for electrolytic capacitors.

5. COILS:
Unit: m:mH or μ H unless otherwise noted.

6. **VOLTAGE AND CURRENT:**
 or $-V$:
 DC voltage (V) in PLAY mode unless otherwise noted.
 or $-mA$:
 DC current in PLAY mode unless otherwise noted.
 Value in () is DC current in STOP mode.

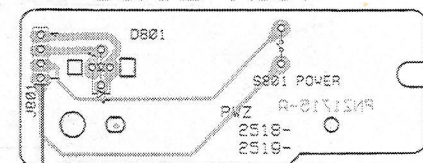
7. OTHERS:
-  or  : Adjusting point.
 -  : Measurement point.
 - The  mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.

8. SCH—□ ON THE SCHEMATIC DIAGRAM:
♦ SCH—□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)

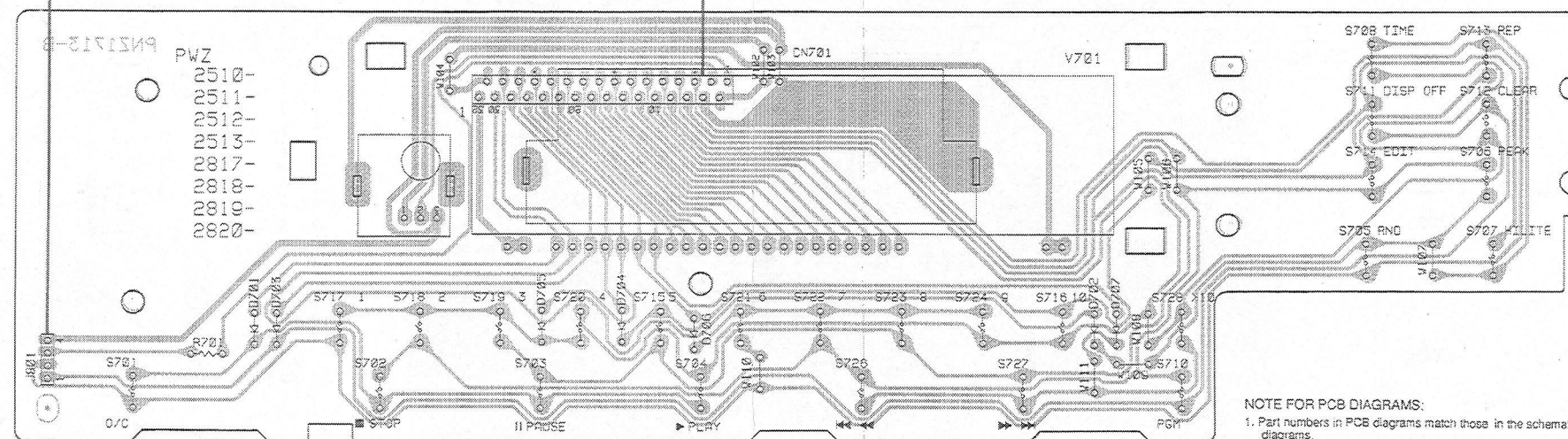
9. SWITCHES (Underline indicates switch position):

FUNCTION BOARD ASSY		
S701 :	Q/C	S716 : 10
S702 :	■STOP	S717 : 1
S703 :	■PAUSE	S718 : 2
S704 :	■PLAY	S719 : 3
S705 :	RND	S720 : 4
S706 :	PEAK	S721 : 5
S707 :	HILITE	S722 : 7
S708 :	TIME	S723 : 6
S709 :	PGM	S724 : 9
S711 :	DISP OFF	S725 : ▶▶▶▶▶
S712 :	CLEAR	S727 : ▶▶▶▶▶
S713 :	REP	S728 : > 10
S714 :	EDIT	
S715 :	5	SW BOARD ASSY
		S801 : POWER

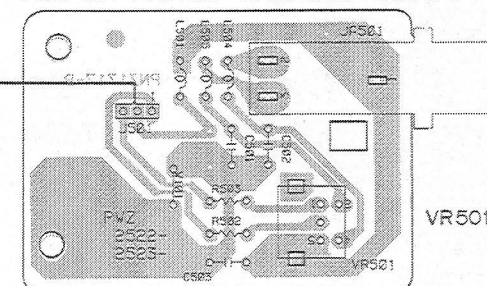
SW BOARD ASSY



FUNCTION BOARD ASSY TO MOTHER BOARD ASSY CN351



HEADPHONE BOARD ASSY

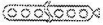


TO FUNCTION
BOARD ASSY
CN701

PNP1321-C

NOTE FOR PCB DIAGRAMS

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

5.3 PCB CONNECTION DIAGRAM

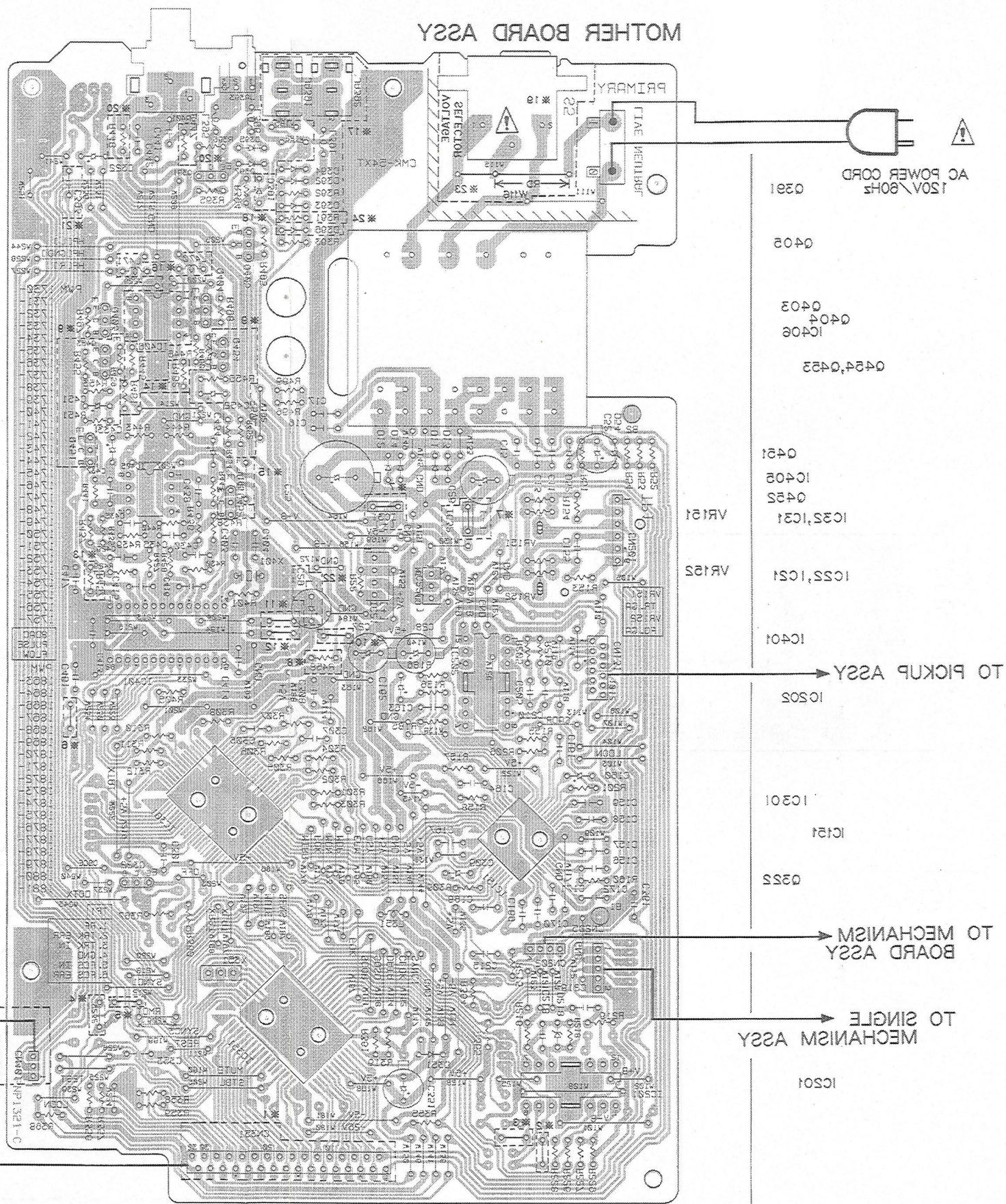
• This diagram is viewed from the foil side.

A

B

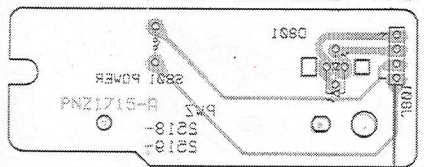
C

D

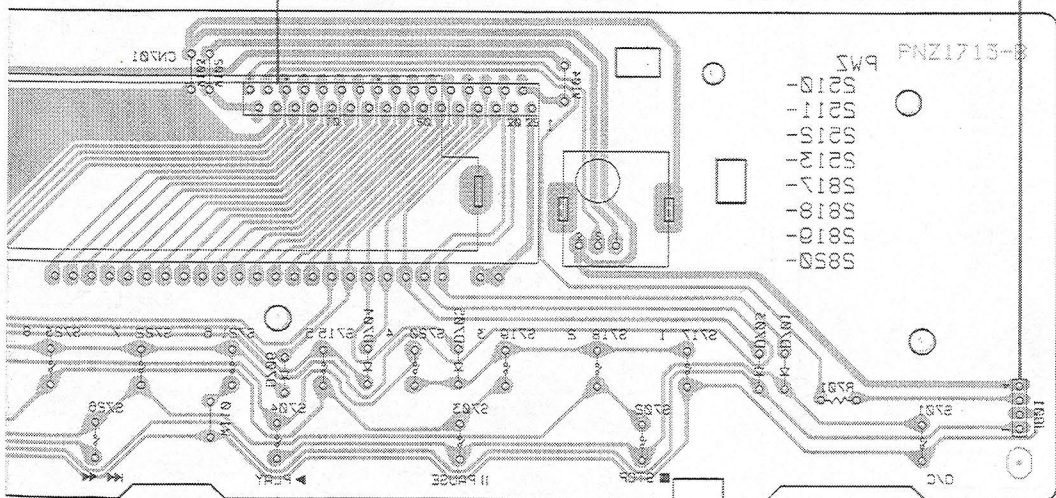


PNP1351-C

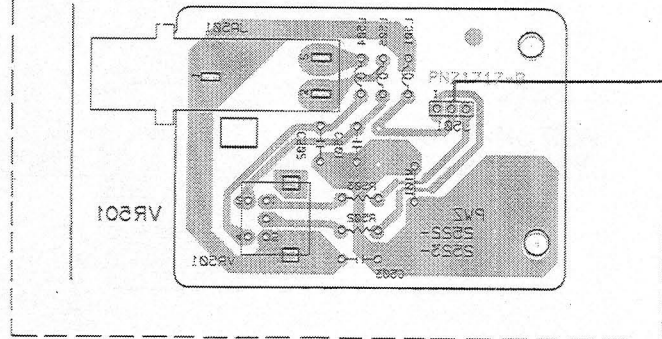
2W BOARD ASSY

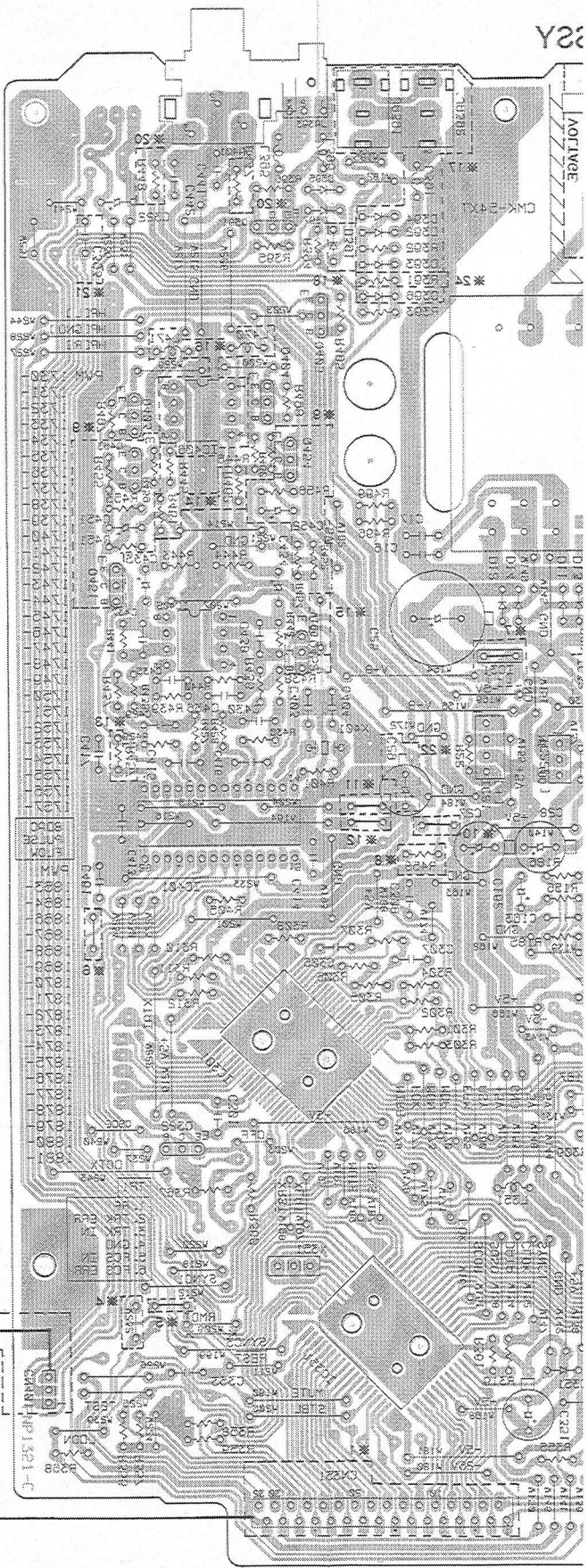


FUNCTION BOARD ASSY TO MOTHER BOARD



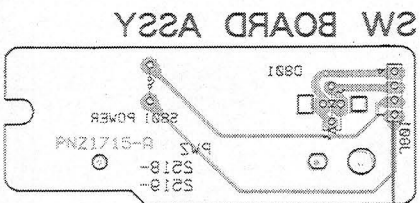
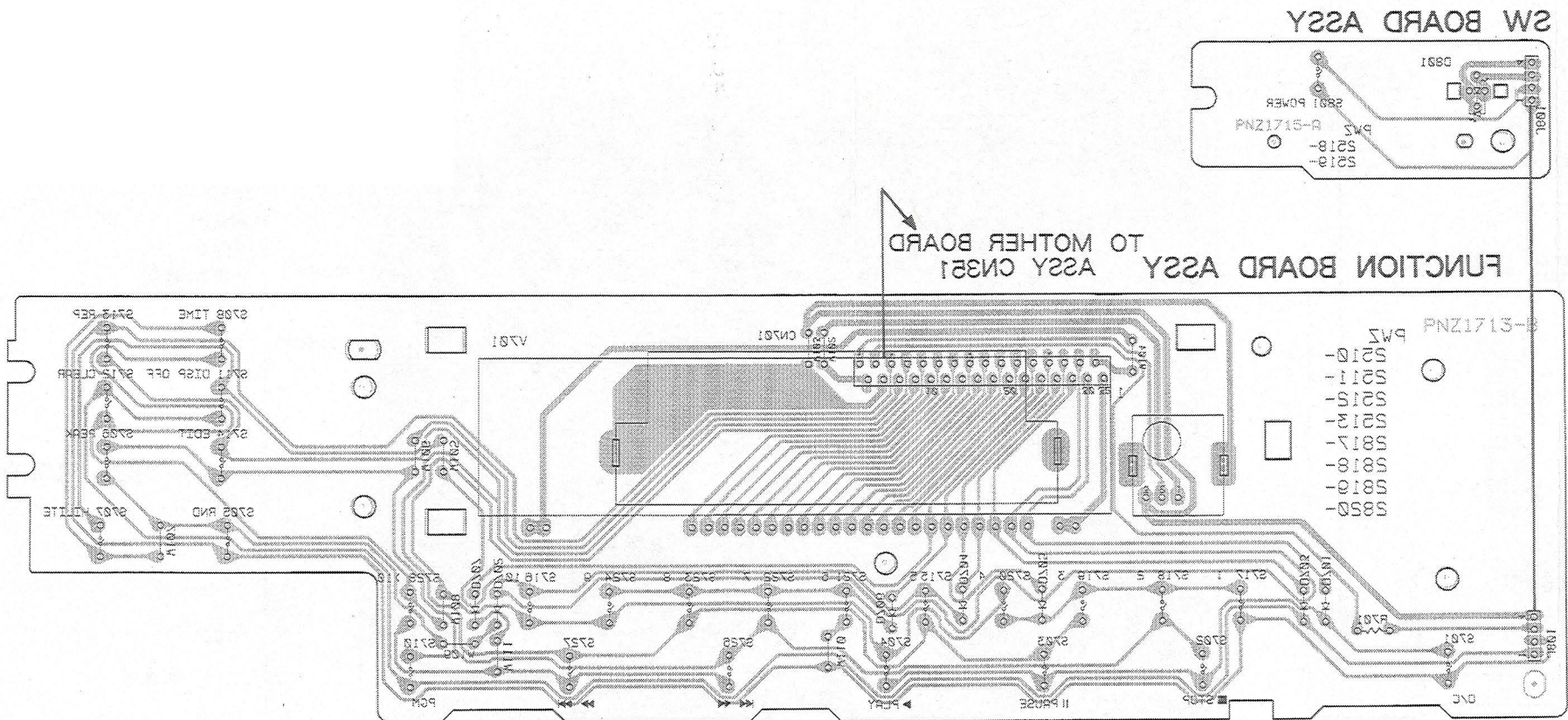
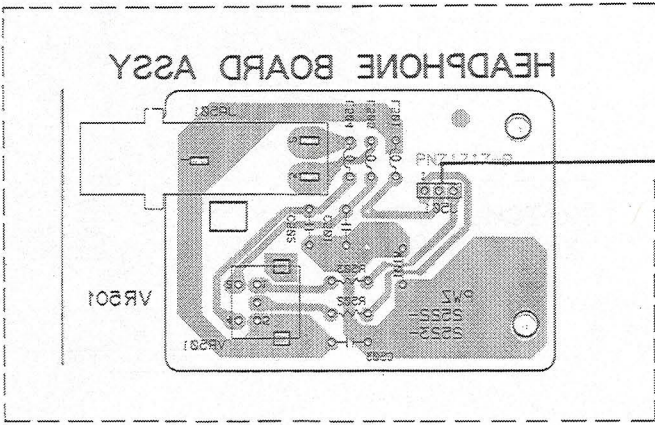
HEADPHONE BOARD ASSY





PNP1351-C

TO FUNCTION
BOARD ASSY
CN701

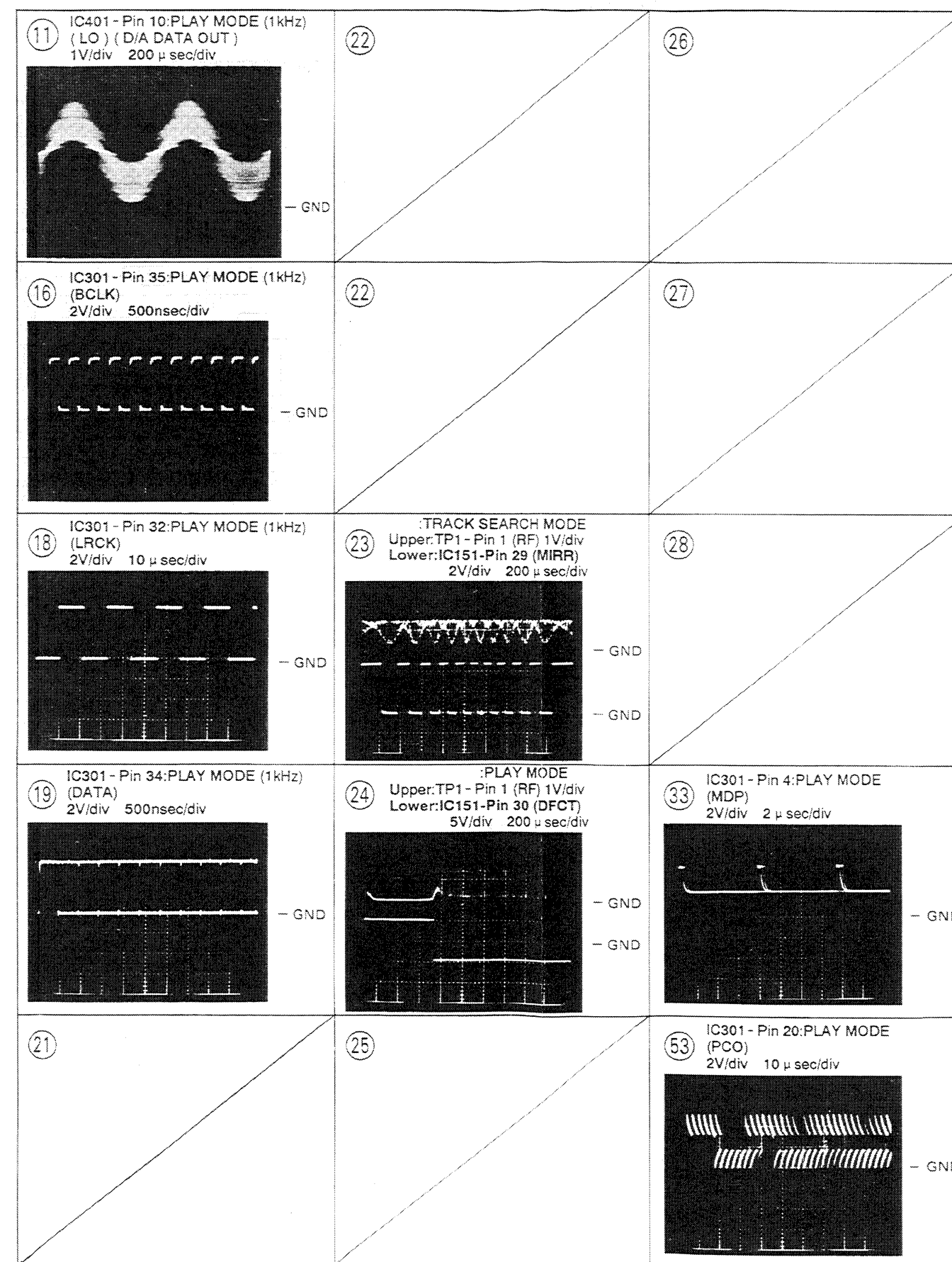
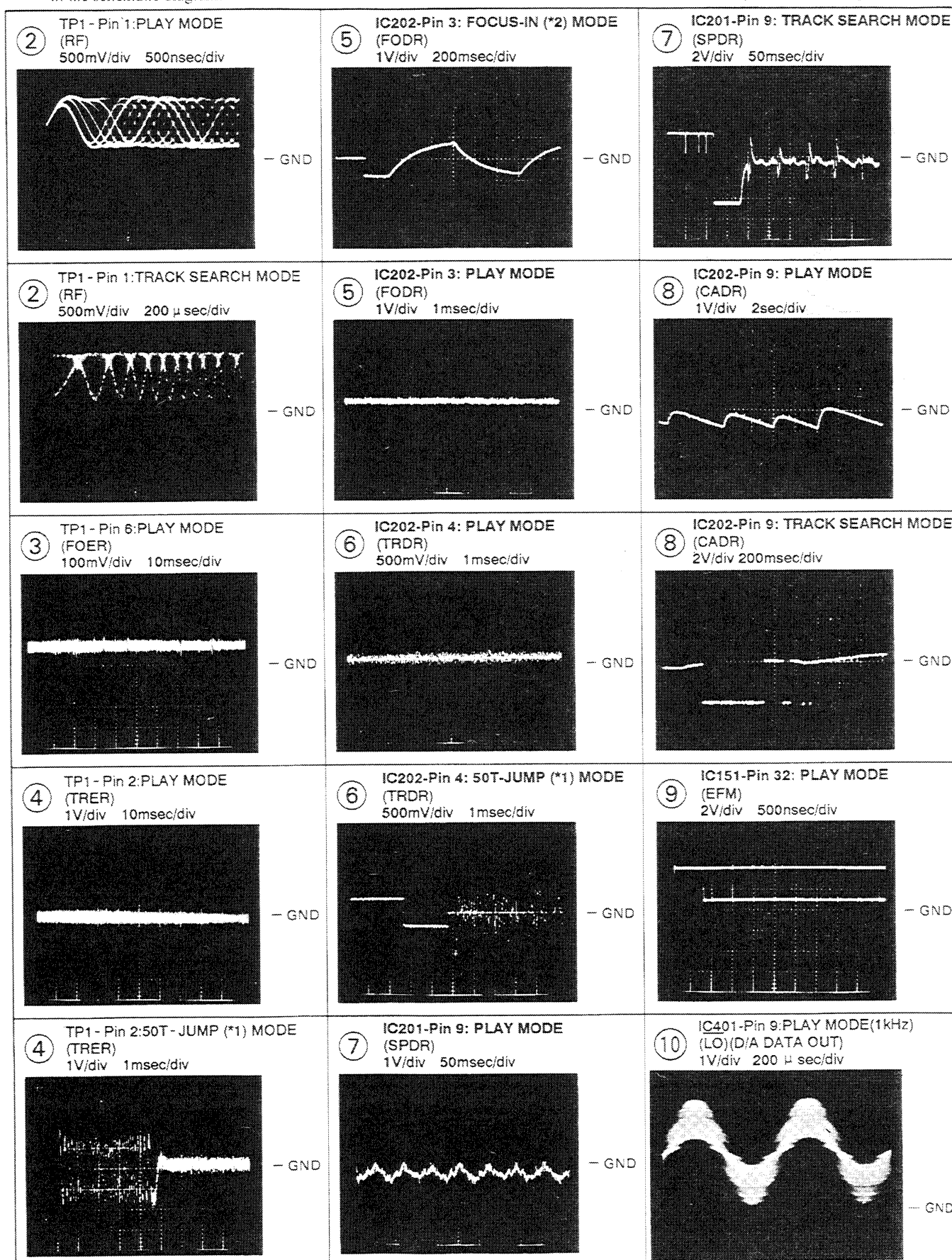


2.4 WAVEFORMS

Note: The encircled numbers denote measuring points in the schematic diagram.

*1 50T-JUMP: After switching to the pause mode, press the manual search key.

*2 FOCUS-IN: Press the key without loading a disc.



2.5 IC BLOCK DIAGRAM

